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The Huxley Address

ON

THE FUNCTION OF THE CÆCUM AND APPENDIX.

Delivered at Charing Cross Hospital Medical School on Oct. 3rd, 1904,

BY SIR WILLIAM MACEWEN, M.D. GLASG., F.R.S.,

REGIUS PROFESSOR OF SURGERY, UNIVERSITY OF GLASGOW.

INFLUENCES AFFECTING HUXLEY'S CAREER.

GENTLEMEN,—On one of those benches which you are now occupying there sat, about 62 years ago, a man destined to become one of the foremost workers and greatest scientific leaders of his time. If any justification were needed for the free scholarships founded in the Charing Cross Medical School it would be found should the scholarships aid in producing once in a century a man of the calibre of Thomas Henry Huxley. Most people are familiar with the immense anatomical and physiological work accomplished by Huxley with which his name will ever be connected. It is, however, of interest to inquire into the influences to which he was subjected during the early period of his life which fitted him for his future career. We cannot do more in passing than glance at two of these.

What Huxley owed to the various teachers in Charing Cross Medical School may be difficult to gauge and hopeless to apportion, doubtless each had his subtle influence. Some teachers supply material which enables students to pass examinations and nothing more. Here and there one finds a teacher who not only imparts information but who can do much more for receptive students—he can teach them to observe and, better still, he may induce them to think. When we do happen to come in contact with one of these we should stand by silently and watch him work. Such teachers are true fertilisers of youth. Had it not been for William Hunter there never would have been a John Hunter. The elder brother not only educated John Hunter in scientific anatomy and physiology but he put him on the rails of original research and the work accomplished by the younger brother in this direction is proof that he had profited to the utmost by his prior education. There were two people who Huxley acknowledged aided in forming his early mind. The one was Professor of Physiology in Charing Cross School of Medicine, Mr. Wharton Jones, of whom Huxley says: "I don't know that I have ever felt so much respect for anybody as a teacher before or since"; the importance of that teaching may be gathered when it is remembered that Huxley made comparative anatomy and physiology his life-study. The other was a man with whom Huxley hardly ever came into personal contact and whose life-work lay far removed from scientific pursuits, one who has been called many hard names and who will live long after the libellers have been forgotten—one who wrote his works in the silence and seclusion of the lonely countryside. We may see in Huxley's whole life the immense influence exerted over him by this great teacher. He not only led him to look into German literature and to reap the fruit of the extension of that study into German science, but Huxley's life-work seems to have been framed upon Carlyle's principal motif. Huxley acknowledges his great indebtedness to "Sartor Resartus" and perhaps I may be permitted also to acknowledge that influence. The first time I read "Sartor Resartus" it was a sealed book to me; my mind being quite unprepared for it it fell flat. Years after, having passed through a furnace of doubt and difficulty in the meantime, I happened to light accidentally upon "Sartor Resartus" and, opening its pages, read and re-read it, day and night, pursuing its discourse with restless eagerness until it was consumed and digested. Its true meaning and bearing on life was revealed; it proved a draught of deepest joy and refreshment to a thirsty soul. It is evident that "Sartor Resartus" made a deep impression upon Huxley. Look, for instance, at what Carlyle says on the pursuit of truth. "One circumstance I note," says he. "After all the nameless woe that inquiry which for me, what it is not always, was genuine love of truth, had wrought me, I nevertheless still loved truth and would bate no jot of my allegiance to her. Truth—I cried—though the heavens crush me for following her; no falsehood! though a whole celestial lubberland were the price of apostacy." The same cry has been repeated through Huxley's life. We recognise it as the guiding spirit of his work, that which made him hate shams and strike them hard when he found them. In commenting upon the many hard names he had been called Huxley says: "One thing people will not call me with justice and that is 'a liar!'" He regarded truth as the apple of his eye. He would willingly own the monkey as an ancestor, should facts prove it to be so, and would shun anyone who used great gifts to obscure truth. It was that ruthless endeavour to reach truth and to cling to it for its own sake that made Huxley what he was. His creed may be summed up in his own words, "Sit down before fact as a little child, be prepared to give up every preconceived notion, follow humbly wherever and to whatever abysses nature leads or you shall learn nothing."

No doubt most of you are familiar with that delightful life of Huxley written by his son and the many glimpses into his character which one gets there. Allow me to give another. Many years ago a paper was prepared by me on the Transplantation of Bone and a friend suggested that it should be sent to the Royal Society. Not knowing one single person belonging to that society I rather hesitated about complying with the suggestion, believing that the paper might not be received. Finally, however, it was agreed to let the Royal Society have the refusal of it. So the paper was sent, addressed to "The Secretary." Shortly after I received a letter from Huxley, who was secretary at that time, inviting me to be present for the reading of the paper which he had taken the responsibility of placing directly before the society without requiring as usual that it should be first submitted to the council for consideration. The recollection of that first meeting with Huxley has ever since filled me with warm admiration of his kindly personality. I came before him an absolutely unknown person and a stranger yet he took me by the hand, seated himself beside me, and soon we were oblivious to all save the matter of our conversation. He asked me many questions concerning the subject of the paper and gave me in return information regarding the persistence of vitality in parts removed from the lower forms of organisms and other kindred subjects. He further gave much useful advice on the best manner of presenting the paper to the society. The summary read was successful in awaking the interest of the members in the subject treated and a discussion followed the reading in which Mr. Busk, Mr. Bowman, Emeritus Professor Allen Thomson, Professor Huxley, and others took part. But I believe it was mainly the kindly interest evinced by Huxley toward the subject which brought about its favourable reception.

RECENT VIEWS ON THE ALIMENTARY TRACT.

Is this body of ours so very imperfect that we require to submit it to the numerous rectifications which are sometimes recommended to be carried out after it comes into the world? The Arabs, not content with the beautiful ovoid form of the cranium, apply boards and flatten the heads of their offspring. Certain Africans and South Sea Islanders transfix their nasal cartilages and place rings and skewers through them. The Chinese produce a very high arch in the feet of their ladies by bringing the toes and heels together. We smile at these "improvements" and call them distortions. When a male child is born in this country some consider it necessary that he should be circumcised. A few years later the tonsils are removed; this is followed by the removal of the pharyngeal tonsil; still later the appendix becomes an ever-increasing terror which is only allayed when that organ has been placed in a glass jar. Next there is at present openly expressed discontent about the alimentary tract. Some are persuaded that there is an intestinal whorl too much and that this extra whorl requires to be "short-circuited." It is further alleged that the stomach is an organ which the human body would be well to be rid of; though it be the chief seat of digestion of albuminous substances, yet that the small intestine should take its place. One author goes on to say that many creatures that have found the opportunity of obtaining their nourishment in a highly digestible condition have lost more or less completely the digestive organs, that parasites such as the tapeworm [illegible]

the human digestive tract, bathed in nutritive fluid which they absorb directly, they having no digestive tract. From the trend of this author's remarks one would gather that he believed that man has been evolved in the wrong direction, though he does not go the length of proposing that man should receive his nutriment through the medium of his morning tub. It would not be surprising if someone going on the same lines were to state that he had arrived at the conclusion that the olfactory and gustatory nerves were but remnants of a bygone age when our primitive ancestors had to sniff the air to guide them to their food and for its proper selection had to depend on their sense of taste; as these nerves were no longer of use for our protection and comfort, were in fact a source of considerable inconvenience, their devolution would add greatly to the happiness of mankind; that mastication was out of fashion, teeth a failure, deglutition a bore, especially as the tongue was now constantly occupied in a "higher sphere," and digestion a discomfort; that eating and drinking with all their attendant evils, being remnants of a pre-civilised age, ought to be abolished, and each human being, shortly after birth, should have an enterostomy performed—quite a simple matter, an incision, a loop of bowel, a few stitches—and ever after that be happy. A few pellets of concentrated essences delicately adjusted by chemical processes might easily be dropped into this minute aperture, where they would speedily be converted into pabulum sufficient to sustain man in all his wants without any waste products remaining. Instead of the nation being burdened by the maintenance of the largest fleet in the world held for the protection and transit of ships loaded with foodstuffs which pass into our markets day by day, some firms of chemists would simply enlarge their premises and send out food supplies in the shape of pellets which could be delivered by the local postman. What a social revolution this would accomplish! How much time and labour would be saved. The abolition of the epicure and the diner-out! Champagne and turtle soup a matter of history! No more teetotal societies or black-lists and the consequent empty gaols, to say nothing of the solution of the domestic servant problem! It is scarcely likely that in the city of London at least such a proposition would become popular.

Again, the large intestine is by some physiologists regarded as a useless inheritance, bequeathed to us by our animal ancestors, of little importance as far as digestion goes and mainly discharging a function similar to that of the urinary bladder. The urine, continually secreted by the kidneys, accumulates in the reservoir provided by the bladder. In like manner after digestion the remaining waste matter accumulates in the intestinal receptacle, the colon, where it remains for a period but where it may stagnate, the products of putrefaction being absorbed and thereby becoming harmful to the individual. It is boldly asserted that the large intestine and its appendix are at best superfluous, generally antagonistic to health and baneful to the life of man, and that their removal would be attended by happy results. Some who hesitate to go so far as to advocate the removal of the colon have no scruple in condemning the cæcal or vermiform appendix. All agree that this is a rudimentary and useless organ through the incompetency of which life is constantly threatened and many times lost. Some persons have been so much impressed by this idea that they are uneasy until the appendix has been removed and some surgeons say that while operating for other purposes, they never miss the opportunity of relieving their patients of a possible source of danger by removing the normal appendix from the abdomen.

With all such proposals before us, one is forced to ask, Is this human body of ours so badly constructed that it contains many useless parts and requires so much tinkering? Possibly I may be out of fashion with the times, as I cannot find such imperfections in the *normal* human body as are alleged. On the contary, the more one looks into the human body and sees it work the better one understands it and the more one is struck with the wondrous utility, beauty, and harmony of all its parts. There are many parts of the human body the structure of which is unknown and the function of which is hidden. Have we a right to conclude that every part of the human anatomy the structure and function of which we do not understand is useless? The theory of evolution does not lead us to such a conclusion. Evolution there certainly has been and it still goes on but it would be fallacious to conclude that every organ the use of which is not clear to us must be a remnant of a past existence and therefore of no further use. Man, like all other animals, has undergone, and is doubtless still undergoing, slight modification as the thousands of years pass, but when that fact is granted we have still to ask whether man has outlived the use of any particular part of his anatomy. Others argue on different lines, stating that they have removed the healthy appendix and that as the persons have thereafter maintained undisturbed health it was clear to them that the appendix could perform "no function useful to man." Is this argument not equally fallacious? One has been compelled to remove the spleen and certain portions of the brain, one of the lungs, and one of the kidneys, and the patients recovering were in after life able to go about their work without detriment apparent to the ordinary observer, but it would be ridiculous to say that therefore the spleen and those portions of the brain, kidneys, and lungs were useless in normal human beings and should be removed or that man would be as well without these organs. One would prefer normal man as he came into this world to the pared and mutilated animal which would be produced if the attempts at betterment which some proposed were carried into effect. With all his alleged imperfections normal man is a much more perfect animal than the physiologist or the surgeon can make him. Human effort towards the repair and perfecting of normal man has hitherto been poor compared with nature.

It is, however, seen that the appendix is often the seat of disease, sometimes arising with startling abruptness, sometimes approaching insidiously and usually selecting the youth of both sexes, striking them down with appalling suddenness. To combat the disease thousands of operations are required, many individual surgeons performing hundreds of operations for the relief of this affection which would in the majority of instances otherwise have ended fatally. All this removal of diseased appendices, however, does not bring us one step nearer the causation of the disease nor the prevention of the malady, nor does the solution of these seem probable as long as one regards the appendix as useless. If the appendix be really a useless organ and at the same time a menace to the life of its possessor, should it not be removed at an early period of existence? Many imbued with this idea beg to have their appendices taken away. In the midst of this serious indictment against the appendix, dare one say a word in its favour? The great majority of mankind seems to do very well with the appendix; it gives rise to no annoyance in them, for it is, after all, a small percentage of the community that becomes the victims of appendicitis. Is the appendix really a useless organ? In endeavouring to answer this question it is seen that the appendix is so closely connected with the cæcum that it is necessary in any such inquiry to consider the structure and function of the cæcum and appendix together. While physiologists have done much work on digestion in man they have confined their attention principally to the upper portion of the alimentary canal, seldom descending further than that part of the small intestine where the bile and the pancreatic juice are poured into it. The large intestine is treated by them as a whole, the cæcum is not differentiated, and the processus vermiformis is either not mentioned at all or dismissed in a few lines dealing with its histology. It is only recently that anatomical text-books have paid attention to the structure and position of the appendix, the attention of anatomists having been directed to it by the surgical work that was being done in that region. In the same way people learn geography by the wars that are being waged in various parts of the world. Speaking generally, the colon—including the cæcum—is regarded by physiologists mainly as a receptacle for the refuse of the foodstuff from which the nutriment has been removed. The absorption of the soluble constituents, especially of water, is completed in this tube and it is probable that cellulose may be digested by fermentive changes occurring therein. Is it not possible that in man the cæcum and appendix play an important part in the process of digestion? In considering this question let us first look briefly at the lessons which may be gained from a study of digestion in the lower animals.

Comparative anatomy shows us that in the lower forms of life, such as in fish, batrachians, and reptiles, the cæcal appendages do not exist, the small and large intestines forming a continuous tube. Higher in the scale of life, as in birds and mammals, one sees at the junction of the small with the large intestine one and sometimes two pouches in which the food undergoes a certain process of digestion before it is passed into the colon. There are, however, considerable differences in the cæca among the mammals and

birds dependent on the nature of the food which they consume and on whether there is special provision for its digestion. In the carnivorous mammals, as in dogs and cats, the cæcum is rudimentary or absent and the colon is short and uncomplicated. The gland secretion from the upper part of the alimentary tract is abundant and so strong as to produce a powerful digestive effect, which process is carried out in the stomach and small intestine, the latter of which also absorbs the principal nutritious elements. It is quite different in the complicated digestive apparatus of the herbivora, in whose immense cæca the digestive process goes on and in some of which it forms the most important part of the digestive apparatus. In those of the herbivora whose food not only is poor in nutritious substances but is enclosed in resisting cellulose envelopes, the digestive apparatus is complex and often specialised. The ruminants have not only powerful masticatory apparatus and abundant saliva but they have several pouches and stomachs in which the food is prepared and they possess long intestinal tracts and well-developed cæca. On the other hand, in the monogastric herbivora, as the horse and rabbit, which do not chew the cud and which often bolt their food, the stomach is small and the digestion is principally cæcal, the cæcum having become compensatorily enlarged. The cæcum in these animals is enormously developed, being much larger than the stomach and forming an immense pocket occupying the greater portion of the abdomen. Besides having numerous folds of mucous membrane it is abundantly endowed with gland follicles and large lymphatics. The cæcum is thus a compensatory organ to the stomach. In those herbivora that feed principally on tender vegetables and fruits capable of being easily digested the cæcum is small. In those that feed upon bulky vegetables difficult to digest and rich in cellulose, besides having specialised organs made for digestion in the upper part of the alimentary tract, they have enlarged cæca in which an important part of the digestion occurs, while in those herbivora whose stomach is small the principal part of their digestion occurs in the cæcum. The cæcum of the solipedes takes the place of the ruminants' stomach. In birds the same facts are demonstrated. The vegetable eaters among them have greatly developed cæca, abundantly supplied with glands secreting a digestive fluid, also with villi for absorption, and the mucous membrane is thrown into folds further to multiply the surface. In flesh-eating birds the cæca are rudimentary or absent, digestion in their case being completed in the stomach and small intestine. In such birds as pigeons and geese with double crops—analogues of the ruminants' pouches—the process of grinding and mixing the food with digestive fluid is so thorough that the digestion is completed in the upper portion of the alimentary canal and the cæca are absent. The crop and gizzard fulfil the same end as the cæca. It is seen in the herbivora that a large amount of undigested food is found in the cæcum, while in the colon most of the undigested matter had disappeared, showing that digestion has occurred in the cæcum. Many recognise that the cæcum acts as a reservoir for fluids and undigested foodstuffs coming from the small intestine, the cæcal reaction and temperature favouring fermentative change. While cellulose has passed through the small intestine unacted on by the saliva, gastric juice and pancreatic secretion, it becomes digested in the cæcum where it may be converted into marsh gas and possibly into sugar, the latter of which is absorbed.

To summarise, one sees that the digestion in carnivorous birds and animals takes place principally in the stomach and small intestine, the cæca being rudimentary or absent, while in the herbivora the cæcum is enormously developed and in the solipedes the cæcum is the chief digestive organ, the stomach occupying a secondary place. Man if not an omnivorous animal is at least a carnivorous and herbivorous one; therefore, by analogy, one would expect man to possess not only a stomach and small intestine but also a cæcum just as he has. As the vegetable food which he consumes is generally of the more tender and nutritive varieties the cæcum is only of moderate size.

DATA OBTAINED FROM OBSERVATIONS ON MAN.

During practice frequent opportunities present themselves, by means of openings made for the relief of pathological conditions or brought about by traumatism or disease, for observation on digestion as carried out in the various portions of the alimentary tract. While such observations have, from the very nature of things, been fragmentary and incomplete, and in this respect not comparable to direct experiment practised on the lower animals, and further having the disadvantage of being seen through pathological surroundings, still they possess some compensating value from having been made upon man himself. The effect upon the patient of the escape of foodstuffs from the alimentary canal through fistulous openings varies according to their position relatively to their distance from the stomach. The nearer the stomach the more serious is the result. For our present purpose it is sufficient to look to the effects of the escape of chyme from such openings as may occur toward the distal end of the small intestine, the cæcum, and the colon. When openings have formed toward the distal extremity of the ileum of sufficient magnitude to allow the chyme and intestinal secretions to escape freely, the patient suffers from inanition. A somewhat similar result is seen when the artificial opening has occurred in the cæcum of sufficient size and patency to allow of the free escape of the contents. The strength of the patient becomes less and is difficult to maintain, especially when ordinary food is administered.

In marked contrast to this is the condition of the patient affected with an artificial opening in the descending colon near the sigmoid flexure. He does not lose weight; on the contrary this is often increased, his health and strength are maintained, and he is capable of carrying out his usual avocation with vigour. These facts go to prove that the entire nutriment obtainable from food is not removed during its passage through the small intestine, otherwise there would be no perceptible loss when the chyme is removed at the end of it; whereas it is only when the chyme is allowed to pass along the whole length of the large intestine as far as the sigmoid flexure that the patient derives the full good of the ingested matter. It is further seen that if a large opening be made in the cæcum, not only permitting the contents to escape freely but also interfering seriously with its secreting surface, troublesome diarrhœa is apt to occur, accompanied by a watery secretion from the mucous membrane. This diarrhœa which is likely to ensue constitutes one of the difficulties in dealing with such cases and arises not only from the interference with the cæcal function but also probably with the influence controlling the ileo-cæcal valve. If the cæcum be entirely removed the patient recovers and maintains fair health so long as special diet be taken, but he is subject to attacks of diarrhœa alternating with constipation on the ingestion of ordinary food. In six cases of this kind operated on by me two had only a tendency to diarrhœa alternating with constipation, and they complained of frequent indigestion, while four others complained of diarrhœa as being of frequent occurrence. Though for months after the operation which relieved them of their previous pathological condition these patients improved greatly in strength and weight, yet ultimately they appeared thin and impoverished, the diarrhœa being still apt to occur. In one patient whose cæcum, ileo-colic valve, and a large portion of the ascending colon had to be removed the ultimate diarrhœa was an annoying and a marked symptom, commencing, as the patient stated, "on the slightest excuse" and continuing for an indefinite period thereafter—often for weeks. This patient likewise became weak and lost flesh and though living for many years after the operation never regained normal weight. (It has been reported that ligation of the cæca in chickens produces diarrhœa with loss of flesh which ultimately causes death from inanition.) Those cases illustrate the fact that the arrest of the function of the cæcum results in disturbed digestion manifested in diarrhœa and in lowering of the strength, though these results may be modified by special diet.

In observing the cæcum through defects in the abdominal wall, it is seen that when in a physiological condition and undisturbed it undergoes considerable alterations in form, sometimes being broader and sometimes elongated, and occasionally there is a churning movement. At first such movements seem to be erratic, but there are at least some of them which apparently are excited by the taking of food and by its passage through the small intestine. In some patients immediately on taking food into the stomach there was a cæcal movement commencing from below upwards as if expulsive. In one instance this seemed to correspond to a peristaltic action of the small intestine, but in others such movement in the small intestine could not be discovered and in them it followed the ingestion of food too quickly to permit of the peristalsis acting through the whole length of the small intestine. It was therefore regarded as probably due to reflex action. Once this movement was

excited in the cæcum it traversed the colon and in one instance, at least, it reached as far as the sigmoid flexure. Some of these cæcal movements originate in the appendix, the undulating movement running upward from the appendix and causing the contraction of the cæcum. There were other movements in the cæcum the point of origin of which was not ascertained. Observations on the interior of the cæcum seen through defects in its walls showed that there were differences in the amount and fluidity of the secretion exuding from its mucous surface. When irritated mechanically the flow of exudate was greater and more fluid. At a variable interval after a meal—one or two hours—peristaltic effects in the colon ensued resulting in the extrusion of its contents, and shortly after a clear thick fluid was poured from the secreting cæcal surface and in several instances was seen to exude in considerable quantity from the appendicular orifice. As far as could be ascertained there was no cause for this flow other than a reflex action, possibly stimulated by the presence of food and the exudation from the upper part of the small intestine.

In a case where the anterior wall of the cæcum had been removed (by an explosion), the ileocæcal valve and the appendicular orifice being exposed, after recovery from the shock several observations were made. First it was seen that there was a considerable flow of glairy mucus from the appendix and cæcal surface which did not constantly exude or at least did so to a greater extent shortly after food was introduced into the stomach and to a marked extent just before food began to pass through the ileo-cæcal valve. On one occasion quite a stream of fluid poured from the appendix just before the chyme began to pass through the ileo-cæcal valve. When chyme passed through this valve it did so in small quantities at a time and there were occasional pauses in which the ileo-cæcal valve seemed to close—probably by a reflex action. This fluid from the cæcum and the appendix was invariably alkaline. This patient, who was very observant, took quite a philosophic interest in his condition and was rather proud that his misfortune could be made of service. It was seen that his will power had no effect upon either the secretion or on the control of the ileocæcal valve; but one day when he was much disturbed by the reception of "bad news" which could not be kept from him, and after which he said he had indigestion or was "bilious," the secretion in the cæcum was at first very watery and then the surface became drier than at any previous time and apparently the contents of the small intestine were more quickly evacuated and overflowing gave rise to smarting and irritation on the sides of the wound. The chyme was acid, the cæcal secretion being scanty was not sufficient to neutralise it. Usually the flow from the ileo-cæcal valve was slow, the material passing into the cæcum in small quantities which slide over the orifice of the appendix and get smeared by the exudation therefrom, as well as mixed with the exudation from the general cæcal cavity.

It seems as though there were a control over the ileo-cæcal valve regulating the amount of material which passes from the small intestine into the cæcum. If the valve by any means be rendered patent the contents of the small intestine flow quickly into the cæcum and a troublesome escape of semi-digested material ensues—material which has missed the cæcal digestion. One of the troubles of operation in this region consists in the arrest of the control of the ileo-cæcal valve and the flow of the fluid contents from the small intestine into the cæcum at a rate greater than the cæcum and appendix can deal with. Is this regulation of the flow into the cæcum due to reflex action induced by the impression on the nerves of the mucous membrane of the cæcum and appendix brought about by the quantity and quality of the contents of the small intestine which are received into the cæcum? Such is a probable solution. Attempts were made to stimulate artificially the exudation from the cæcum and appendix. The passage of the finger lightly over the cæcal surface from the ileo-cæcal valve downwards toward the base of the cæcum did not succeed in increasing the exudation. A camel's hair brush moistened in the chyme issuing from the ileo-colic valve and drawn several times downwards over the mouth of the appendix was followed on several occasions by an increased exudation, while oftener it had no such result. The fold of mucous membrane about the orifice of the appendix has been seen to close and to cover the orifice and in the same patient has been seen to recede and to expose the opening. Artificial means were not successful in bringing the folds of mucous membrane over the aperture by inducing reflex action.

You are all aware that by a beautiful experiment performed on the upper part of the digestive tract of dogs Pawlow has recently shown that there was what he named an acid reflex which controlled the pyloric extremity of the stomach and prevented the acid contents of the stomach from issuing in too great quantity at a given time, whereas with alkaline contents the reflex of the pyloric valve did not exist. It appears to me that at the ileo-cæcal valve there is a controlling reflex agency regulating the flow of partially digested food into the cæcum. It regulates the flow of material at a rate which enables the cæcum and its juices to deal with it. When this agency is interfered with cæcal indigestion occurs which generally ends in diarrhœa of partially digested matter but which occasionally leads to masses of matter gathering in the cæcum and causing constipation with subsequent fermentative action of a kind which is apt to result in irritation of the mucous membrane and appendix.

THE NERVOUS MECHANISM OF THE APPENDIX.

The appendix is regarded as a mere diverticulum of the cæcum and yet its vascular and nervous supply pertains more to that of the small intestine than that of the colon. The appendix is supplied by the terminal branches of the same group of nerves as supply the small intestine; the superior mesenteric plexus of the sympathetic reflex action may be easily set agoing in the appendix by stimuli from the small intestine and each part may react on the other. When it is recollected that the circular muscles of the cæcum are continuous with those of the appendix and that the longitudinal cæcal bands end themselves on the appendix it will be understood how easily the nervous apparatus of the appendix may initiate the larger movements of the cæcum by first inducing movements in the appendix and how inhibition of these movements may cause cæcal disturbance. The same agency by control of the vascular supply will regulate the exudation from the appendix and that in accordance with the impulse received from the small intestine. It is known that the mind has an influence on the small intestine through the vagi, sometimes exciting peristalsis and sometimes arresting it. The appendix is subject to the same mental effects. An instance of the result of mental disturbance on the cæcal secretions having been already quoted one can see that a concentrated brain effort or profound mental distress has the power of producing effects upon the appendix and cæcum and their secretion. Thoughts passing through the mind are well known to affect the secretion of the salivary glands. In two cases which were under my notice, in both of which the duct had formed a communication with the skin on the cheek, while the natural opening into the mouth had closed, we could produce an astonishingly free flow of saliva by mere suggestion of foods, especially of acid fruits. One of the patients had to beg of his friends not to introduce food topics into their conversation in order that he might be relieved from mopping up the flow. While his mind was fully occupied, as when he felt cornered in chess, there was cessation of the salivary flow.

In the foregoing we have seen that there is a nervous mechanism regulating the movements of the appendix and cæcum and also controlling the ileo-cæcal valve. We have also seen that the exudation of the appendix and cæcum is augmented and diminished in certain circumstances. Let us look now to the character and power of this exudation emanating from the appendix and cæcum.

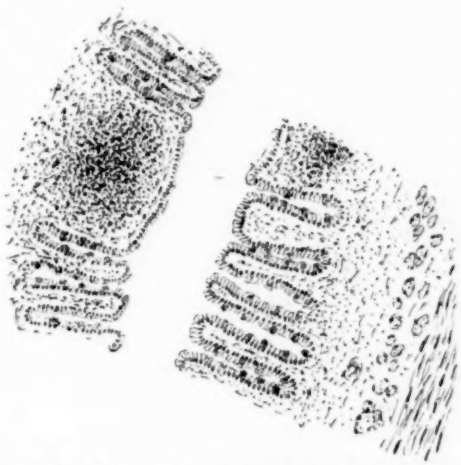
THE SECRETING SURFACE OF THE CÆCUM AND APPENDIX.

In the first part of the large intestine, and especially in the cæcum and appendix, the lymphatic follicles and the glands of Lieberkühn are very numerous and well developed, the latter being larger, deeper, and broader than the corresponding cells in the small intestine and the goblet cells which they contain are larger and more abundant. This all histologists admit. So closely are those glands packed together in the cæcum that the united surface presented by them is immensely larger than the ridges between the glands which is all that is left at this place for absorption. So that the histological structure would point to the cæcum and appendix being made for digestive purposes rather than for absorption. The succus entericus which is exuded by these cells of Lieberkühn has hitherto received scant attention by physiologists and it has been stated that even in the small intestine it is of little moment in digestion. But in the small intestine the succus entericus is of great assistance in digestion, possessing the capability of increasing the activity of the pancreatic ferments and "more especially the proteolytic," the latter to a marked degree. The succus

entericus appears to Pawlow as a ferment of other ferments which he names enterokinase. So powerful is this kinase that while pancreatic juice alone took six hours to dissolve fibrin in a thermostat and had not even attacked white of egg after ten hours, the addition of some succus entericus to the pancreatic juice dissolved the fibrin in from three to ten minutes and the coagulated white of egg in from three to six minutes.

Now, if we remember that the glands of Lieberkühn are far more numerous and better developed in the upper part of the colon, the cæcum, and appendix than in the small intestine it will be apparent what a powerful adjuvant to the completion of digestion is to be found in the cæcal succus entericus which is poured out so abundantly from those parts upon the semi-digested matter received from the small intestine. Taking the appendix apart, though there are individual differences, one sees in most appendices that the surface is covered with glands of Lieberkühn in an active state of secretion during health (Fig. 1). If one

FIG. 1.



Glands of Lieberkühn and lymphatic follicles taken from the appendix (longitudinal section).

takes the appendix at an average of three and a half inches and lines that space with glands of Lieberkühn encircling the interior it is seen that a considerable amount of succus entericus may be exuded from that surface alone, more especially as it is abundantly supplied with blood. Therefore the secretion of the appendix viewed alone in this sense would be a valuable aid to digestion.

THE ACTIONS OF MICRO-ORGANISMS ON CÆCAL DIGESTION.

There is, however, another agent at work in the final disintegration of pabulum poured into the cæcum and that is the micro-organisms. They find in the cæcum and appendix abundance of alkaline medium in which they can grow and pabulum in the chyme for their development. They undoubtedly perform a part in disintegrating compounds which have resisted the action of the gastric and intestinal exudations. These organisms are found in all the recesses of the cæcum and colon and are constantly found in the cavity of the appendix, the exudation from which aids in stimulating and at the same time in controlling the action of the organisms and in preventing them from acting injuriously upon their host. The leucocytes in the solitary lymphatic follicles and the nuclein aid in maintaining this control. Bizzozero has shown that the cells of the appendix in healthy rabbits contain enormous numbers of degenerated micro-organisms and Ruffer has counted more than 200 micro-organisms in a single field of the deeper layers of the vermiform appendix. It looks as if the cells and nuclein of the solitary follicles in the appendix have a controlling action on the organisms, and one of the functions of the appendix may be to maintain cultures of these organisms in a fit state to perform their function on the pabulum poured into the cæcum. On the inhibition of this function the germs may be capable of damaging the coats of the cæcum and appendix which have been thereby lowered in vitality. When a purgative action has produced its effect and cleared out most of the germs from the cæcum and colon, those in the appendix will still maintain a fresh culture for renewed action. The chyme from the ileo cæcal valve is directed towards the orifice of the appendix and receives there its portion of succus entericus and germs fitting it for the completion of digestion.

SOME ANATOMICAL RELATIONS OF THE APPENDIX AND ILEO-COLIC VALVE.

When one looks at the disposition and arrangement of the various parts in the interior of the cæcum one sees that the ileo-cæcal valve, besides performing its other functions, is so founded that it sheds the chyle over the orifice of the appendix in its descent into the cæcum. (See schematised drawing of interior of cæcum and appendix.) The appendix, while in itself having the muscular mechanism and nervous apparatus necessary for emptying its contents in any position it may normally be placed in, is, in the majority of instances, so situated that the action of gravity favours the escape of the contents into the cæcum. The action of gravity favours the retention of the chyme in the cæcum until the cæcal digestion is completed, when muscular movements are originated for its expulsion. (Fig. 2.)

FIG. 2.

Scheme of cæcum, ileo-cæcal valve, and appendix in section.

CAUSATION OF APPENDICITIS.

In the foregoing it has been shown that the cæcum and appendix perform an important part in the final stages of digestion. If this be so one would expect *a priori* that serious interference with the function of those parts would give rise to disease. This is exactly what occurs. Though the causes of appendicitis are varied the majority are intimately associated with the digestive process and the factors controlling it. Thus, Deaver, who has perhaps performed more operations for appendicitis than anyone, says that the disturbances of digestion have been so pre-eminent in the etiology of appendicitis "that it is unhesitatingly asserted that appropriate inquiry will elicit a history of such disturbances in almost all cases." "Indigestion" is a very vague and loosely employed term to indicate discomforts of many kinds occurring in the alimentary tract. The differentiation of cæcal indigestion from other forms requires further study before the symptoms pertaining thereto are accurately defined. This presents certain difficulties—first, because cæcal digestive incompetency must have an effect upon the upper part of the intestinal canal, while indigestion arising in the small intestine will likewise act upon the cæcum; and secondly, because the irritation and inflammatory changes in the appendix produce through the superior mesenteric plexus pains in the abdomen generally but especially over the region of the umbilicus. From these two reasons there is difficulty in the early stages in properly localising the lesion and often the patient is believed to be

suffering from a form of indigestion attributable to the stomach or upper parts of the small intestine when in reality it arises from the cæcum itself. If cæcal disturbance of function continues both cæcum and appendix suffer. There will be want of proper exudation of succus entericus in quantity and in quality and lowering of the activity of the solitary lymphatic glands which will no longer control the germs which swarm in that cavity. The bacillus coli communis, which is the surgeon's terror, serves in its proper place a beneficent purpose in effecting the disintegration of some of the undigested matter but when uncontrolled by the healthy organs and their exudations is apt to cause ravages in the tissues and to produce toxins which are lethal. If from inhibition of the appendicular and cæcal movements or the want of exudation of the succus entericus or if the cæcum receives material which the succus entericus cannot digest a stasis occurs in the contents of the cæcum and the constipation which is so often a feature of the appendicitis ensues. At a later stage fermentative disintegration of the fæcal contents with absorption of toxins and damage to the wall of the parts are apt to ensue. These are followed by diarrhœa which is sometimes curative.

Doubtless the appendix and cæcum are affected together but just as pyogenic organisms affecting the throat spread by continuity of structure to the middle ear and mastoid cells and produce serious damage there long after the throat has healed, so the appendicular inflammation once started may continue to produce serious effects within the appendix after the cæcum has recovered from the primary effects. As to prevention of appendicitis there are some lessons to be derived from the foregoing. Primitive man had to search for his food and sometimes he had a hard physical fight to get it. When he found it he had been looking forward to it, was fit for it, and enjoyed it; consequently he had an abundant flow of all the digestive juices which were ready to receive the food and to give it a warm welcome. Present-day man is said to be in an evolutionary stage. With his indoor occupations and his ever-engrossing mental pursuits he forgets that he has to live and that in order to do so he has to eat and to digest and that his duty to himself and to the community is to do both well in order that he may continue in health. But from the way prevalent in many places he seems to act as if food should be thrown into the stomach as a sandwich into a pocket and the lid closed. Then he wonders that he has indigestion and appendicitis. Though in a sense digestion is independent of the direct control of the brain, yet powerful mental impressions exert an influence over the glands concerned in digestion—from the salivary down to the glands of Lieberkühn in the cæcum and appendix. The mental influence is such that when the mind is engrossed in other affairs than the taking of food those gland secretions are apt to be scanty and indigestion is apt to follow. If a person is mentally engrossed he ought to refrain from eating or to eat very sparingly. The standing lunch, eaten against time while the mind is fully occupied with business or professional examinations, the food instead of being chewed and mixed with saliva being simply washed down as a bolus with some fluid, is one of the best ways of not only producing indigestion but of ultimately causing cæcal and appendicular mischief. Man has neither got a crop like a bird nor a cæcum like a horse and therefore he has no provision for bolted food. One has heard of children being forced to take foods which they dislike because "it was good for them." The digestive juices will not flow in such circumstances. The brain of children is often so burdened with "tasks" committed to memory and engrossed with educational enigmas that there is no time for digestion. Mastication is not taught in schools, digestion has no place in national education, and there are no certificates given for sound digestion; but we appoint instead Royal Commissions to inquire into the causes of the physical deterioration of the race. Although the cæcum aids in digestion it does so by receiving partially digested food which contains the proper amount of secretions from other glands. It does compensate somewhat for their defects but cannot do so entirely. Therefore, it is a matter of great moment to commence the digestive process well. A free mind, with the prospect of enjoyment of food, thorough mastication until the saliva is efficiently mixed with the food, and then the process of gastric digestion will have a good beginning and the food thus prepared will be received in due course with abundant digestive juices in the other parts of the canal. At a consultation on one occasion the lady of the house (French by origin), who was not a patient, being in perfect health, twitted the local Scotch medical man with the rainy weather they kept in Scotland. He replied: "But, my lady, it seems to suit you as you are always in good health." "Yes," she said, "thanks to you, doctor, you always keep me in good health." The medical man laughed and explained that the lady always asked for advice but never took the medicine. The lady said that at least she always had the prescription made up, that it was the same wherever she went—London, Paris, or elsewhere—she consulted the best authorities and had a general chat with them about her condition and how best to maintain health and when they were good enough to give her a prescription she had it made up and dated and placed both prescription and drug in a cabinet made for the purpose. But, she added, "Indeed, I have never been ill. I believe the greater number of maladies arise from indigestion and that indigestion occurs mainly from too fast eating, whereas I eat slowly and many times I am ashamed as I am the last to put down my fork." There was a method in that lady's madness.

For many years I have believed that the cæcum and appendix are of value in digestion. The facts pointing in that direction have accumulated slowly and are not all garnered. Many require still to be investigated. One would have preferred to wait until they were gone over again, re-tested, and either verified or dropped out. But "art is so long" that I have ventured to present you with an unfinished picture which I hope some of you will be able to correct and to finish. What has been said is merely a contribution to the subject. In dealing with it in the future remember what Huxley says: Let us sit down before fact as a little child, be prepared to give up every preconceived notion and to follow humbly wherever nature may lead.

References.—Lectures of Professor Pawlow; translated by W. H. Thompson. (Charles Griffin and Co. London. 1902.) R. M. Smith: The Physiology of the Domestic Animals. (Philadelphia. 1889.)

An Address
ON
THE FUTURE RELATION OF KING'S COLLEGE TO ITS MEDICAL SCHOOL AND HOSPITAL.

Delivered at King's College at the Opening of the Medical Session on Oct. 4th, 1904,

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GENTLEMEN,—Before proceeding to address you on the subject of the future relation of King's College to its medical school and hospital I should like to say a few words upon the more general topic of the medical life and practice. And first let me congratulate the students who have been winners in the competition for the highest distinctions awarded in the medical department, and have received to-day the welcome recognition of their industry and ability. There is no need for me to enlarge upon this. The legitimate satisfaction at their success which they must feel is far and away more grateful to them than would be any words of mine. But I should like to remind those of my hearers who have industriously competed without in the end finding a place in the list of the more fortunate recipients that they cannot be described as "losers." They are simply "non-winners," and indeed, so far from having lost anything, it is certain that they have gained very much, for the time expended in working cannot but be attended with infinite advantage to themselves. It has been wisely said that "the reward is in the race we run, not in the prize." Nothing can deprive them of the precious service to their own mental development rendered by their hours of industrious occupation and the last thing they would desire or need from us would be any expression of condolence.

It would be a truism to say that the medical students of

this college are on the threshold of an honorable profession. Speaking as one who has been a member of it for very many years I should like to say for their encouragement that I believe they have chosen well. They will have the opportunity of living the fullest, and it will be their own fault if it is not the most useful, of lives. What better has existence to offer than this? I took my place as a first year's student in this college on the occasion of an introductory address by the late Dr. Todd, and of all the many sentences which fell from his silver tongue there is but one which I now remember, and that was a quotation, "To scorn delights and live laborious days"; and the words were applied, of course, to a medical career. The aptness of the latter part of the quotation cannot be denied. There is probably no more laborious life than that of a medical man and doubtless in the sense in which the words were employed by the poet (as will be acknowledged by those who remember the context) the former half is also true. But I am ready to assert with confidence that in no walk of life can the highest forms of delight, those which belong to the acquisition of knowledge and those which never fail to attend the faithful performance of duty, be looked for and found more certainly than in that upon which many of those before me are now entering. Did time permit I would gladly pursue this general topic—one upon which the experience of a long and active professional life probably gives me some authority to dwell—but I will content myself with saying a few words upon a practical point which may perhaps prove useful to some of those whom I am addressing.

I would earnestly counsel all those who have the opportunity—and there must be very few who have not—to aim at the highest—not to be satisfied, I mean, with that qualification for practice which is most easily obtained. Addressing as I am an assembly of medical students, the majority of whom are probably intending to enter family practice, I would point out to them that in these days graduation at a university is in the air. The times have passed when it was only necessary in our profession for the consulting physician to obtain a degree. In such greater numbers every day are family practitioners adopting this course that one need not be possessed of any gift of prophecy to say that in a few years those who are without a good medical degree will lag behind in the race for success and still more so for distinction. As is well known, Cambridge and Oxford are attracting large and increasing numbers. The more recently founded and important universities in our northern counties are providing admirable facilities for students coming from the provinces. London, however, with its unrivalled resources for clinical teaching and experience, must in the future become more and more the most esteemed centre of all for the acquisition of medical knowledge. In its lately developed form the University of London is, if I am not mistaken, certainly coming to occupy the highest place in the education of the medical profession. The well-recognised esteem in which its medical degrees have always been held has suffered no diminution since the change in its constitution, whilst the direct representation on its Senate of all the most important colleges and public bodies in London has vastly increased and widely extended its influence upon education. I should certainly advise every student I am addressing to aim at obtaining a degree in the Faculty of Medicine of the University of London.

As I said before, graduation is in the air. The time is rapidly coming when members of all professions will naturally be expected to hold a university degree. It is not so many years since it was a rare exception for a solicitor to have graduated at a university and as for the engineer or the architect they were practically never seen in the ranks of university graduates. All this, as we well know, is changing daily. Even in the military profession graduation is asserting its influence and the Army Council is arranging with the universities to carry on military education during the undergraduate period, granting a commission upon examination to selected candidates when the degree is taken, and antedating it by a twelve-month to the recipient of honours. I say that you cannot afford to lose the opportunity which you now enjoy of taking a London degree. I daresay it will appear to many of you impossible that you can ever require it. That is what you cannot possibly foresee. I have the best of reasons for knowing that the possession of the London degree may make a vital difference in the whole career of him who holds it. Nor is the advantage of it at all confined to consultants. I was consulting a few weeks ago with a very able practitioner of medicine in one of the London suburbs and observing that he held the M.D. London degree I asked him if he thought that this had made any difference to him. He did not hesitate but said that it had made all the difference in the world to him. He was junior partner in a firm of three of which the two others were also graduates of London and he would not have been permitted to join them but for his possession of a London degree. He told me also that in his experience the public were steadily learning to appreciate the value of these degrees. Nor are there wanting signs that the State is likely in the future to avail itself more and more of the services of high-class members of our profession in public duties, especially perhaps in the investigation of the causes of disease in various parts of our worldwide empire and in the organisation of measures for their prevention and treatment. For such appointments the mark of higher education which is furnished by the possession of a London degree cannot fail to be of great value. I would remind those now entering that the curriculum is of the same length, five years, both for a London degree and the Conjoint diploma. Let them try, if they will, for both. They will have to work extremely hard there is no doubt. So much the better. I feel inclined to repeat what President Roosevelt says in one of his addresses, "Your work is hard. Do you suppose I mention that because I pity you? No, not a bit. I don't pity any man who does hard work worth doing."

Are the London degrees obtained with any more ease than was formerly the case? I do not think so. Perhaps the larger choice of subjects in the matriculation examination may facilitate matters a little. A little grace, too, is given in another direction. In the general preliminary scientific examination a student may be examined in each of the three subjects separately. Students who have failed in one or more subjects of the examination may offer themselves for re-examination in these subjects, either separately or together, at any subsequent examination. And in the general intermediate examination in medicine students who have failed in one subject only may offer themselves for re-examination in this subject if permitted to do so by the examiners. Personally I should be inclined to extend such facilities and to favour the candidate being allowed to take his subjects in a somewhat piece-meal fashion. It is amusing to see a juggler keep half a dozen balls in the air at the same time but there is no particular use in the achievement. The necessity of passing in several subjects on one and the same occasion disposes, I think, to cramming and in my judgment should be discountenanced. It may probably be taken that the London degrees are at least as valuable as they ever were and no less difficult to obtain. Can it be doubted that a student should strain every nerve to obtain such a distinction? It has been said that a severe examination always excludes fools and sometimes excludes persons of genius. I would commend the consideration of the latter alternative to those who have the misfortune to fail.

Let me turn now to the topic upon which I have promised to say a few words. It will be readily understood that the approaching removal of our hospital to Camberwell has necessitated the most careful and anxious consideration of the relations which should subsist in the future between the College and its Medical School. The disadvantage which has always to some extent been felt in the past from the circumstance that the school and the hospital were not under the same roof (as is almost invariably the case with the medical schools generally) would naturally be much intensified by the greatly increased distance between them unless measures could be taken to obviate the difficulty. It was at once evident that with a distance of nearly four miles between the College and the new hospital continuance of the Medical School on existing lines was not practicable. In certain respects, too, it must be remembered, the step we are about to take is unexampled in the medical history of the metropolis. It is true that hospitals without medical schools have before now been transferred successfully to new sites. And we have also the example (I think a solitary one) of St. Thomas's Hospital (possessing, as we all know, a very important medical school), which was removed from the Borough to its present position in Lambeth after a temporary sojourn in the Surrey Gardens at Walworth. In that instance the school along with the hospital was successfully removed, and possibly there are

those who would say that there is no reason why we should not simply imitate the example which has thus been set. I think I can show you why this is out of the question. In the first place, since the old days when St. Thomas's Hospital was in the Borough, 40 or more years ago, a great change has come over the academical arrangements for the education of the medical student. At that time (and I am speaking of things within my personal knowledge) the old idea of "walking the hospitals" as representing the first step to be taken in medical education had not altogether died out and the notion that the student ought to prepare himself by some years of scientific study to profit by the opportunities of clinical experience at the hospital had not advanced into practical working. Accordingly the student of medicine entered the wards of the hospital on the day that he joined a medical school. In some cases this would be only a month or two after he had ceased to be a schoolboy. In many instances he would have passed some years as an apprentice dispensing his master's prescriptions. The expression "preliminary and intermediate studies" was then unknown. In these days, as is well known to the teachers though the fact may not be widely recognised by the public, the student does not make, or ought not to make, his appearance in the wards of the hospital until he has been for some two years or more studying and has passed examinations in a number of scientific subjects. Sometimes, it is true, he may put in a little work as an out-patient dresser or clerk. But this, I understand, is rapidly becoming a thing of the past and his appearance in the hospital itself in the earlier half of his education is now in some institutions forbidden and in all discouraged. For that reason alone the removal of our medical school to Camberwell, so far as the preliminary and intermediate studies are concerned, with the necessary vast expenditure which would have to be incurred in connexion with lecture rooms, apparatus, laboratories, &c., would clearly be motiveless. It will not bear a moment's contemplation.

But there is also another and a yet more convincing reason. King's College, on account of its science faculty and because of its recognition by the University of London as a complete collegiate institution, must in any event still retain the teaching of these purely scientific subjects, and it is in the college itself and not in the hospital that they must be taught. It must be remembered that this is not simply a question of a hospital linked on to which is a school of such scientific subjects (and those only) as concern the medical student. King's College is an institution which may be described as of university character. It possesses faculties of theology, arts, science, engineering and applied sciences, and medicine, besides having a women's department and a boys' school. A very large and important professorial staff has to be maintained for the service of the various faculties, and the medical student who enters here has the great advantage of sitting under professors whose business in life it is to teach the particular subjects in which their eminence is acknowledged. The only other institution in the metropolis with which it is comparable is University College. These two colleges are described in the University of London Statutes as "Schools of the University in all the faculties in which they respectively afford instruction." The medical schools of the metropolis generally are designated "Schools in the Faculty of Medicine." There is no necessary obligation for the schools in the Faculty of Medicine to concern themselves with the teaching of the preliminary and intermediate studies. It is notorious that the burden of provision for the teaching of such subjects has often been, and is now in many instances, a grievous one. There has never been any financial advantage in it. On the contrary, it signifies a constant outlay upon the various requirements for the exposition of the subjects and this, with the progress of science, is becoming, and cannot fail still to become, a more and more serious demand. It means the absorption of space which would be of the greatest possible value in supplying the needs for properly teaching the essentially hospital studies. It means that very often a man whose abilities lie in the direction of medicine or surgery rather than in that of pure science and who is conscientious in his work, spends a large amount of time in cultivating his knowledge of and teaching a subject the pursuit of which, whilst it is of no use whatever to him, probably displaces research in another direction which might be of great service to the science or art of his profession. How much better it would be if this work were undertaken by those who have made the study of these sciences their life work and the teaching of them their profession.

It is easy to understand how the medical schools have almost insensibly piled up on their shoulders the burden under which many now groan. The task of supplying such requirements in the old days was not a very severe one. But year by year the difficulty has increased until it has become well-nigh insupportable. The process, no doubt, has been a very gradual one, and in the earlier days indeed the idea of obtaining elsewhere than in the hospital the necessary teaching of more or less preliminary subjects did not enter into consideration. A young man entered at one of the hospitals and found there, as he expected, all that he needed for each step in the process necessary for acquiring a degree or diploma. The idea of going outside the hospital for any part of his education was practically never entertained. All that is now changed. The student of medicine may obtain, and as a matter of fact frequently does obtain, the teaching of such subjects as chemistry, physics, and biology where he likes so long only as he conforms to the regulations of the examining body by which his knowledge is to be tested. It is also notorious that the large majority of the students who pass their examinations in the early studies at Cambridge or Oxford up to and including anatomy and physiology come to London for their hospital studies and enter at any hospital they may choose to select. The idea that the student should necessarily carry out his "hospital studies" at Oxford or Cambridge is never contemplated. In the case of the many London students who do not go to the older universities and whose aim it is to obtain a degree at the University of London or the diploma of the Conjoint Board, it is evident that King's College has peculiar advantages to offer as a school for the preliminary and intermediate studies. Owing to its constitution as a complete collegiate institution it is necessarily equipped in its science faculty with all the requisites for education in the purely scientific subjects—those studies which have to be completed before the student need determine at which hospital he will enter to carry out his advanced or hospital studies. How to extend these advantages and to turn them to the best account in the new departure in which we are engaged has occupied the very earnest consideration of the council, in which it has received most valuable help from the professorial staff of the medical department.

It has appeared to us probable that some of the medical schools of the metropolis who wish to rid themselves of the incubus of providing education in the preliminary and intermediate studies (which, as I have said, is really no necessary part of the work of a medical school) might be glad to come to some mutual arrangement by which King's College would carry out this portion of the curriculum in its science faculty, leaving the student free at its close to complete his education by pursuing the advanced studies elsewhere. So long as King's College continued, as in the past, to receive practically only those students who intended to carry out their whole professional education under its wing it would, I need scarcely say, have been useless to expect that other schools would send their students to it for the early studies. In our new departure it is recognised that King's College, by the peculiarity of its constitution, has probably an increasingly important part to play in the education of the student in the early studies provided that the interests of the other medical schools are properly safeguarded. Surely this should not be beyond the reach of arrangement. I believe I am correct in stating that University College is proceeding on similar lines. By a curious coincidence the first two colleges of the University of London—University and King's—find themselves simultaneously, the former by its forthcoming incorporation with the University and the latter by the impending removal of its hospital to Camberwell, in an unusually favourable position for completely separating the department for the later medical studies from that which is concerned only with the preliminary and intermediate subjects. In each case the arrangements for teaching these latter will be so ordered that they will be able to be made use of by as many of the other schools as may desire to do so consistent with the amount of accommodation they are in a position to afford. The Institute of Medical Sciences projected by the Senate of the University will provide, in process of time and when the very large amount of funds requisite for the purpose are obtained, a third centre of the kind.

It has recently been suggested by a very eminent authority that a centre for the preliminary and intermediate studies

would be necessary on the south side of the Thames. I confess that I am quite unable to agree with him as to this requirement. These earlier studies are acknowledged to be independent of hospital association—witness the number of students who obtain their teaching in them at Oxford and Cambridge. The mere circumstance, therefore, that there will presently be three large general hospitals on the other side of the Thames can have no possible bearing on the matter. Surely the more central and easily accessible the place for these studies the better. The very large cost, too, of founding such an institution would be a most serious objection even if the scheme were otherwise desirable.

Without venturing to enter upon details the consideration of which would be evidently premature at this moment and might possibly be misleading, I think I may sketch very broadly for your information and interest what is proposed to be done by King's College. In the first place, except as regards the name, there will be a complete and entire separation of the hospital from the college. It is desired that, as far as possible, this separation should take effect at an early date. Accommodation will not be provided at the new hospital for any of the preliminary subjects, including under this head physics, chemistry, zoology, botany, anatomy, physiology, materia medica, and pharmacology. These subjects will all be dealt with at the college, as, indeed, they are at the present time. With the exception of anatomy, materia medica, and pharmacology, the subjects in question already form part of our Science Faculty and could not therefore be removed from the college even were it desirable. Anatomy will be retained as a preliminary subject at the college, where adequate accommodation is provided, and it will be transferred from the Faculty of Medicine to that of Science. Physiology, practical physiology and histology, together with experimental psychology, will continue to be taught at the college in the Faculty of Science. The laboratories of experimental pathology and also of neuro-pathology cannot conveniently be transferred to the new hospital, for the council and hospital staff are agreed that original researches in these subjects which may involve experiments on living animals shall find no place within its walls. The teaching of State medicine will be continued in the college. Accommodation will be provided at the new hospital for teaching each and all of the following subjects: medicine (including advanced therapeutics, diseases of children, and psychological medicine), surgery (including operative surgery and surgical anatomy), obstetric medicine and gynæcology, pathology (including general pathology, bacteriology, pathological anatomy, and clinical pathology), forensic medicine (including toxicology), hygiene (by lectures only), the more special clinical subjects (including ophthalmology, otology, laryngology, rhinology, dermatology, and odontology), the administration of anæsthetics, orthopædics, and x-ray and cognate work. It is intended that opportunity should be provided for the study of operative surgery at the college as well as at the hospital. General pathology and bacteriology will be carried on at the hospital as well as at the college under conditions which are not yet quite determined. Such is a brief statement of the arrangements for teaching which are in contemplation. In view of the intended absolute separation of the hospital from the college it is proposed that no member of the new hospital staff shall retain his position as a teacher of a preliminary or intermediate subject at the college. For the same reason composition fees will be abandoned and the student who has entered at King's College for the early studies will not be unduly tempted to proceed to the Camberwell Hospital for his advanced studies by any advantageous financial arrangement. He will be absolutely free to select for his advanced studies the hospital which attracts him most. Just as it is believed that there will be many students at the new hospital who have never been near King's College, so it will be open for any students entering at King's College for the early studies to close their connexion with the college when these are finished and pursue their advanced studies at the hospital of their choice. At all events this is our aim. Although from considerations of sentiment it is evidently imperative to retain the name of "King's" at the new hospital, yet our purpose is that these two institutions, the college and the hospital, should stand to all intents and purposes independent of one another, each prepared to provide for any student of medicine who applies the opportunity of study in the particular subjects of his requirement.

An Introductory Lecture

ON

THE EVOLUTION OF THE MEDICAL CURRICULUM.

Delivered at St. George's Hospital on Oct. 1st, 1904,

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GENTLEMEN,—There is a certain fitness in the coincidence of the season of introductory lectures with that of the fall of the leaf. Lectures and leaves are both structures manifesting design and order and both are destined, after an ephemeral existence, to the oblivion of the rubbish heap. Here the analogy ends, for while the material of the decaying leaf serves as a fertiliser to promote new life there is only a remote possibility that the substance of the lecture may be instrumental in developing fresh lines of thought. Still, as the wisdom of the age has decreed the persistence of this ancient rite of initiation into the mysteries of medicine, it behoves those to whom the conduct of this ordeal is committed to perform their task with all available craft.

There are divers species of introductory lectures: the leading types are the didactic, the hortatory, the reminiscent, the biographical, the facetious, the historical, and the diffuse or indefinite, but there is one common feature in all—they begin by an expression of welcome to those who are entering upon professional study. Following precedent, I commence by congratulating you upon your choice of a hospital. St. George's stands in a prominent position with pleasant environment and I am happy to state that it is to remain in this favoured locality. The governors have decided, at a meeting holden on June 21st last, not to remove the hospital from the site which it has occupied for a century and three-quarters. Around this place there cluster memories of many distinguished men who have taught and learned here, among whom there are not a few who are of world-wide fame. I need only mention Cheselden, John Hunter, Benjamin Brodie, Matthew Baillie, and Thomas Young, but the list might be, if necessary, lengthened; and at no time was the hospital better equipped or better manned than at present. In this connexion I have a melancholy duty laid upon me to refer to the sad loss which the hospital has suffered by the recent sudden death of one of the most esteemed members of the staff, Dr. W. Lee Dickinson, senior assistant physician. Dr. Dickinson came of an old and renowned medical stock. His maternal grandfather, Dr. J. A. Wilson, son of the anatomist, was physician to this hospital, as was also his respected father, who retired from the staff in 1894. I remember Dr. Dickinson very well in his Cambridge days as a distinguished student at Caius College. He devoted himself to physiological research, and collaborated with Professor Langley in experimental work on peripheral nerve ganglia and other branches of nerve physiology and pathology. Graduating in 1890 he served this hospital successively as medical registrar and curator of the museum, coming on the staff as assistant physician in 1894. Ever zealous and devoted to his work he earned the affection and esteem of those with whom he was associated as colleague and teacher. In spite of the failure of his health he continued bravely to discharge his duties until within a few weeks of his death, which took place on Sept. 6th. We all to-day unite in the tribute of grief for the untimely removal of an earnest and devoted man from our company.

The example of the life of such a one would in itself be a theme upon which it would be profitable to enlarge, and he is only one out of the long succession of those who have served the hospital, the profession, and humanity with honour and faithfulness. Had I ventured to make this address biographical, I should have found some difficulty on account of the embarrassment of riches in selecting any one name out of the many "on Fame's eternal bead-roll worthy to be filed." I have therefore chosen to speak upon another text. But before leaving the realm of biography I am

tempted to make a passing reference to one who many years ago faithfully served this hospital, although the class of which he is a type is unfortunately rare, Thomas Young, physician, philosopher, and philologist. Before he entered as a student of medicine in his twentieth year Young had mastered the whole range of the Greek and Latin classics, and could express his thoughts in Greek iambics more easily than most of us can write English prose. He had read Dante, Don Quixote, and Kant in their original languages, and had a good working knowledge of Hebrew, Syrian, Arabic, and Persian before he was 16 years old. While yet a first year student he contributed a remarkable paper to the Royal Society on the mechanism of the accommodation of the eye to near and distant vision, and he was elected to the Fellowship of that body in his second year. In these days of specialisation it is difficult to imagine how a man in medical practice, as he was, should have been able at the same time to engage in the study and teaching of some of the profoundest branches of mathematical physics, and to carry on epoch-making researches in optics and acoustics, subjects in which his discoveries are classical, second only to those of Newton. While discharging his duties as clinical physician and lecturer here he was able to write 63 erudite articles for the Encyclopædia Britannica mostly on branches of physical science, and at the same time he was pursuing researches by which he discovered the key to the decipherment of inscriptions in the ancient language of Egypt. This is the kind of man that St. George's has had on its staff in the past. May there be in the present class some who will worthily follow in his footsteps!

It is right, however, to warn you that the medical curriculum and examinations are far more exigent and extensive to-day than they were in Young's time. No longer are examinations conducted after the pleasant manner of that by which he was admitted to the doctorate of medicine and surgery at Göttingen. "The examination," he says in one of his letters, "lasted between four and five hours. The four examiners were seated round a table well furnished with cakes, sweetmeats and wine, which helped to pass the time agreeably." Other delicacies adorn the tables of examiners nowadays, of which it cannot be said that they afford equal pleasure to the candidates. The course you begin to-day is long, laborious, and multifarious. No other profession or calling requires on the part of aspirants so much or so accurate knowledge, and yet withal the amount required for your examinations is almost an irreducible minimum. The bounds of all the sciences with which you are concerned are continually extending and before long you will readily echo the words of Koheleth, "In much wisdom is much grief, and he that increaseth knowledge, increaseth sorrow." The medical curriculum does not consist of a capriciously selected assemblage of subjects; it is the product of an evolution in which growth has taken place, attended with specialisation of function and consequent differentiation, and although, in accordance with the law of the survival of the fittest, superfluities are being occasionally lopped off, yet expansion proceeds apace in all directions. Each part that remains has a definite function and a necessary place in your training. The subjects are arranged in a strictly logical order, which is the crystallisation of the experience of the ages. Even though you forget everything else that I say let this remain in your memory. The studies of each year are based upon and presuppose those of the year before. If you scamp or neglect any of the first preliminary subjects your whole education and future practice will be unstable and incoherent—a house built upon the sand.

It may help you to understand something of this interdependence of the parts of your course if we review briefly the history of the development of the curriculum. In the time at our disposal I can only give you an impressionist view, sketched with a broad brush, of a few of the outstanding stages in this embryology. I am not going to inflict upon you a history of medicine. I only aim at presenting before you the stages of the development of the courses of instruction, attendance on which have from time to time been demanded of the student before he was allowed to practise his profession. The course of medical study consists at the present day of four parts. First, you are introduced to the wider general sciences upon which the theory and practice of medicine are based. These are physics, chemistry, and biology. Secondly, you have to master the special branches of these sciences, which treat of the normal structure and functions of the organism with which you are specially concerned, the twin sciences of human anatomy and physiology. Thirdly, you must study those departments of these sciences which deal with the weaknesses, irregularities, and alterations to which the parts of the body and their several functions are liable, their causes, and consequences. At the same time you have to learn the effects and influences upon these of the media and appliances which you will require to use in order to correct these faulty conditions. These subjects are named respectively pathology and pharmacology. Fourthly, as the crown of your labours, you must observe in the light of your knowledge of the three preparatory groups of sciences, particular abnormal states as they present themselves before you in the hospital, so that you may be able to employ to the best advantage the special remedial means for the correction of these states. This is the scope of practical medicine and surgery.

The links of this long chain have not been differentiated hastily. The history of medical education is one of progression from chaos to cosmos, from an incoherent folk-lore to the orderly arrangement of connected sciences the study of which you begin to-day. The crudest condition is still exemplified in the empirical pharmacology of the savage and this probably represents what was an early stage of its history in the childhood of humanity. Mankind from the first dawn of intelligence has been subject to two kinds of suffering, injury and disease. The causation of the former is generally material and obvious, that of the latter is not so, and by primitive man was probably, as among savages now it is actually, attributed to the agency of unseen and hostile influences. To combat these evil spirits occult measures were devised by the priests of the tribal cultus and in this manner the primitive traces of medicine appear as branches of what, for want of a better term, we may call magic. By a long-continued process of accident, trial, and error the effects of certain empirical modes of treatment for human ills came to be recognised by these priestly sorcerers, and as the knowledge of these remedies enhanced the power of the priesthood they were jealously kept secret and only transmitted to those initiated into the sacerdotal order. In this state medicine remains among savage and barbaric peoples to this day and beyond this level the art of medicine did not rise even in the comparative civilisation of ancient Egypt, India, and China. The notion that medicine as a science was cultivated in Egypt has been for some time a popular fallacy. At one time I was disposed to credit the ancient Egyptian priest-physician with a quality and degree of knowledge of a higher grade, but the application of a strictly critical method in the study of the extant medical papyri with a rigid restraint on the tendency to read modern ideas into the obscure expressions of these ancient writers have compelled me, though reluctantly, to modify my opinion. Despite their practice of opening bodies for the purpose of embalming the knowledge of anatomy among the Egyptians seems to have been of the slightest; their acquaintance with pathology was *nil;* their surgery was beneath contempt, as is shown by the maltreated fractures and dislocations not uncommon in the bodies of mummies; their medicine was a combination of magical spells and crude polypharmacy showing no trace of a philosophy or of a unifying hypothesis underlying their modes of treatment. Their medical education apparently consisted of the learning of priestly traditions, incantations, and empirical methods. This is all that is claimed by the author of the bombastic preface to the Papyrus Ebers, written about B.C. 1500, although he records that he had made the round of the priestly schools of Egypt.

Our European medical education owes its parentage to Greece rather than to Egypt, for although the Greek philosophers derived much inspiration as to the material of their knowledge from Egypt, yet their methods were wholly their own and this is equally true of medicine as of philosophy. Even at the earliest period known to us the Greek had got ahead of the Egyptian. In the Trojan war Machaon cured by remedies, not by spells; and later we find that medical teaching, such as it was, belonged to the schools of philosophy rather than to the temples. There was, of course, plenty of superstition among the people. The nineteenth century has had no monopoly of Eddys and Dowies. As Greece was the theatre of conflicting philosophies it is not surprising that its teachers of medicine were as little in accord. Cos, Cnidus, and Rhodes were among the most famous of its schools, to which may be added Crotona in

Magna Græcia, and each of these had its own tradition and its own type of doctrine. The teaching of the Coan school we know from the series of books which profess to have been written by Hippocrates, dating from the fourth and fifth centuries B.C., in which the medical lore extant at that time is collected and codified with consummate ability. The fundamental Hippocratic theory was essentially humoralist. Abnormal states of the fluids of the body were regarded as of more account in the production of disease than changes in the solids. Diseases, like everything else, were of divine origin, but come in the course of nature. They must be recognised by their histories and by physical signs and treated by diet and drugs, not by supernatural means. Dietetics, pharmacology, and surgery were the three parts of medicine; for the last named a slight knowledge of the parts of the body was required but otherwise anatomy formed a very subordinate part of the Hippocratic education, probably, to some extent, on account of the difficulty of procuring material.

As the later Hippocratists for the most part reduced the system of medicine to a mere routine of fixed rules they became known as Dogmatists. It sufficed for their students to commit these rules to memory and to have a general knowledge of the Hippocratic literature. But among these codes there was much discordance in the different schools. When in the third century B.C. the centre of medical education was transferred to Alexandria two rival dogmatic camps were there represented. The leader of the school of Cos, who held fast by the Hippocratic humoralism, was Herophilus, but he recognised more keenly than Hippocrates the importance of anatomy as ancillary to medicine and prosecuted its study with zeal. His rival, Erasistratus, the exponent of the Cnidian tradition, although also an anatomist and in a certain sense a solidist, regarded most diseases as the result of faulty nutrition to be treated dietetically only, as he largely discarded the drugs and the practice of venesection which were the chief means of treatment recognised by Herophilus. In revolt against the *a priori* routinism of the Dogmatics a new sect, the Empirics, arose who discarded all the pathology, solidist and humoralist, of the true Hippocratists as well as all knowledge of anatomy. For them diseases consisted of groups of symptoms, each of which had to be treated by its own remedy the choice of which was to be determined by considerations derived from the history of the case and from any analogies which the individual case might present with other cases in their experience. A slender equipment of knowledge sufficed for the education of the Empiric and a six months' curriculum was considered long enough to fit a man for practice.

The remedies in use among all schools were mainly derived from the vegetable kingdom. Theophrastus, the master of Erasistratus, had collected the existing herbal lore and wrote a history of plants for the use of physicians which was used by the Alexandrians. Three centuries later the larger work on the subject written by Dioscorides was adopted as a text-book by the Empirics and retained its position as the standard work on the subject until the fourteenth century of our era when it was replaced by the Antidotarium of Nicolaus of Salernum. The want of solidarity among the Empirics led to confusion worse confounded in medical education and practice. Every man was a law unto himself, and as a result of this anarchy the popular feeling regarding medicine and its practitioners was one of distrust and disfavour. In Greece this occasionally found expression, as in the gnomic verse sometimes attributed to Menander:—

Ἰατρός ἀδολέσχος νοσοῦντι πάλιν νόσος
Πολλῶν ἰατρῶν εἰσοδός μ' ἀπώλεσεν.

This is a match for the Roman epitaph "Turba medicorum perii."

In Rome Cato, the censor, declaims against the Greek physicians in language worthy of an antivivisector, accusing them of conspiracy to murder the Romans with their drugs, "exercising their profession for lucre that they may win our confidence and despatch us the more easily." Pliny also tells us that for 600 years the senate and Roman people showed repugnance to an art whose insidious wiles caused the good to countenance the very worst, "for it is at the expense of our dangers that they learn and they gain experience by putting us to death." The policy of encouraging Greek physicians to settle in Rome was initiated by Julius Cæsar, who conferred on all such the rights of Roman citizenship. Practice in Rome must have been lucrative, for it is recorded that Stertimius and his brother amassed thereby a fortune of a quarter of a million sterling. Not all were equally fortunate. The graphic sketch of the needy doctor in Menaechmi, the prototype of Shakespeare's Pinch, who desired to get into his house one of the victims in that Comedy of Errors, may well have been drawn from the life. He was not as explicit as Dr. Seringe in Vanbrugh's comedy *The Relapse*, who similarly desired to have the wounded Lord Foppington brought to his house; "that is the properest place," he says, "to bubble him out of his money."

During this period many reformers arose but none of them were strong enough to take the position of effective leaders and they only succeeded in founding new sects, of which the chief were the Methodists, Pneumatics, and Eclectics. It was not until the second century A.D. that this confusion was reduced to order by Claudius Galenus, the Pergamean. Galenus was a far-seeing sensible man, although a dull writer, but his treatises made up in volume what they wanted in rhetoric. Taking the Hippocratic writings as his starting-point (for he was essentially a Dogmatic) he insisted on the importance of the knowledge of the structure of the body and the functions of its several parts as the unifying groundwork of medical education. He developed the principle of classification in the description of diseases which had been begun by the Dogmatics and carried the same principle into therapeutics and so systematised the whole field of medical knowledge. He was, like all other reformers, hampered by the professional jealousies of his contemporaries who were for the most part Methodists, so that in spite of the influence of the Emperor Marcus Aurelius he did not enter into his kingdom during his lifetime. But in a short time after his death the series of treatises which he left behind him, embodying as they did all that was best in the medical literature and knowledge of all the sects, completely supplanted the works of his predecessors and in process of time the whole of European and Western Asiatic medical practice and education became completely Galenical. When Christianity became dominant Galen's works were peculiarly acceptable to the ecclesiastical controllers of education on account of their reverend theistic spirit and their recognition of the doctrine of final causes. In later times and for the same reason they had a similar popularity among the Arabians. Throughout the dark ages as well as in the earliest universities the Galenical treatises became a sort of bible of physic to which little that was essential could be added and to deny any part of which constituted a species of heresy. Such a series of text-books completely suited the unvarying routine and uniformity of method of the ruling scholasticism which subordinated all teaching to the church and was inimical to progress by research; consequently, until the fourteenth century Galenical lore was regarded as the sum of all medical education and for two centuries later an almost superstitious reverence for his teaching prevailed.

The medical curriculum of the University of Cambridge formulated by statute in 1396 consisted of at least three years' lectures on medicine. The subjects of these are prescribed as follows. A twice-repeated cursorial hearing of comments on Galen's Techne Iatrike, Prognostics, Aphorisms, and De Regimine, together with the reading of the Latin translations of certain Greek, Jewish, and Arabic commentators on his works—viz., the Isagoge of Johannicius, Theophilus's De Urinis, Philaretus on the Pulses, Isaac's Viaticum and his tract De Urinis, together with the Antidotarium of Nicolaus Præpositus of Salernum. These latter commentaries are only to be read once without comments. A two years' exercise in the practice of medicine is also prescribed but the manner of the practice is not specified.

With the incoming of the humanistic renascence in Italy in the fourteenth century, which opened the door to inquiry, signs of renewed life and growth begin to appear in medical science and methods of medical education. These now emerge from their protoplasmic condition and as each stage in their progress from the days of Petrarch to the present time has been associated either with some epoch-making discovery or with some outstanding group of teachers we may conveniently summarise our sketch by following this association. One of the first tokens of the reformation was the division of the subjects of the medical course into two parts. The first of these they called the institutions or institutes of medicine, adopting the nomenclature which Gaius and Justinian had made familiar in Roman law. The second division consisted of practical medicine. The germ

of this division exists in Galen and is implicit in the Canon of Avicenna, the ablest of the Arabian medical authors. Now, however, the distinction becomes explicit. Under the term "institutes" were grouped all that was then known of the fundamental and auxiliary subjects—anatomy, physiology, medical herbalism and remedies, pathology, astrology, and alchemy. Many treatises on these institutes were written; one of the earliest is the "Liber Pandectorum Medicinae" by Silvaticus, written in 1317, published at Strasburg in 1475. Others by Mayr, Horstius, Heurnius, Riverius, Ettmuller, &c., appeared later.

Horstius divided his institutes into five parts—*physiologike*, *pathologike*, *semeiotike*, *hygiene*, and *therapeutike*. To these Heurnius adds *prophylaktike*, which he divides into *gerokomiko* and *analeptiko*. In some universities professorships of the institutes of medicine were founded with this wide scope of commission: that of Leyden was one of the most famous in the seventeenth century and, chiefly following its example, a professorship under this title was established in Edinburgh in 1724.

Another early fruit of the movement was the reformation of anatomy. Strangely enough, the period of Galenical domination had been one in which practical teaching and research were paralysed. For this Galen himself was not responsible, for he both practised and recommended dissection and down to the end of the second century we know that both dissection and vivisection were performed in many places. Theophanes tells us of such researches taking place in Moesia (Chronographia A.M. 6256 = A.D. 76.) But the Church forbade the practice and the anatomy of the schools was learned only from the Galenical writings. Even when the prohibition was rescinded in the fourteenth century, Mondini, Achillini, and their immediate successors were so saturated with the Galenical tradition that they saw everything with Galen's eyes. The humanist reformers Berengario de Carpi, Eustachi, Fallopius, and especially Vesalius realised that the only kind of anatomical knowledge which is of use in medicine is that obtained by direct observation; and by direct appeal to the body they delivered anatomy from the effete Galenical tradition and taught the subject practically by lectures and class demonstrations. It was not until a much later period, in the eighteenth century, that anatomical laboratories were established, in which the students themselves were obliged to perform systematic dissection. In this country we owe the enforcement of practical anatomy chiefly to the influence of members of your own hospital, William and John Hunter.

The rapid development of anatomy, especially after the publication of the great work of Vesalius, led to the differentiation and segmentation of this subject from the body of the institutes, but the border line of cleavage was at first by no means clear. By the anatomist structure and function were studied side by side, the former practically, the latter theoretically; but the special and practical research into function received an immense stimulus from the discovery of the circulation of the blood by Harvey in 1619. This opened the way to a long train of more or less correlated discoveries, more especially as shortly afterwards the microscope became available as an instrument of research. Within a short time the capillary circulation, the blood corpuscles, and the lymphatic system were discovered. As every such addition to knowledge opened out fresh fields for investigation, which required other means than those of the dissection-room for their prosecution, this domain of function became for the most part annexed by the professors of institutes of medicine, and as by the end of the eighteenth century most of the other branches had been shorn off from the institutes that title became practically synonymous with physiology. It was not until within the last five years that the title was discarded in Edinburgh, while in Dublin the old title of Professor of Institutes of Medicine is still retained for the Professor of Physiology. As with anatomy, the new subject was first taught by lectures and demonstrations, but as its importance became more fully realised practical work in the laboratory became a necessity and now forms one of the most essential parts of the work you have to do. The names of Sharpey and Foster should be specially remembered in connexion with the development of this subject. The scope of physiology, however, had in the eighteenth century been completely altered from that which was comprehended under that title at earlier times. In the beginning of the seventeenth century it included the elements, the temperaments, the faculties, the humours, and some fanciful notions concerning the development of the fœtus.

It may be interesting here to see as an evidence of progress the extent of the medical curriculum of the University of Cambridge for the degree in medicine in 1700. Medicine was then represented in the professoriate by the Regius professor of physic alone. The course was one of six years, during which the candidate had to be present at two dissections at least and had twice to respond in discussions. The student in surgery had, in addition, to make two dissections at least himself and was required to bring proofs that he had effected at least three cures before he was admitted to practise. The Galenical curriculum had been abolished by the statutes of Queen Elizabeth. By the end of the eighteenth century these requirements had undergone simplification. The University at this date had a professor of anatomy, of chemistry, and of botany as well as one of medicine, but the student was left to his own discretion as to the method in which he acquired his knowledge, no attendance at lectures being prescribed or any definite course suggested.

The earliest lecturers on anatomy even in Galenical times illustrated their teaching by the comparison of human structures with those of other animals. As knowledge advanced in matters of detail this method of instruction assumed a new importance, because it was found that many structures which were not easily unravelled or examined in man could be more readily understood from the forms in which they occurred in simpler organisms. Your own John Hunter was one of the greatest contributors to the growth of this subject, and he erected his most enduring monument in the physiological series of organs which he arranged in his great museum. Towards the end of the eighteenth century this subject became so large that it was made the theme of independent lectures. In 1767 the University of Edinburgh founded a professorship of natural history to provide for this want, and some years later other similar courses were established elsewhere. By this process of segmentation another subject, that of zoology, was added to the curriculum in some schools.

It has been already noted that as the majority of remedies used in early medicine were derived from the vegetable kingdom, the work of Dioscorides had been admitted alongside of the Galenical writings as part of the mediæval medical course. By means of this book or of some other ancient Herbal the student was taught to recognise and to gather the simples which had to be prepared and compounded for his master's prescriptions. To provide the necessary teaching for this purpose the first professorship founded in the Medical Faculty of the University of Edinburgh was one of medical botany in 1676, and the first laboratory there was the Physic Garden, arranged after the model of the much more ancient Physic Garden in Leyden over which the great Boerhaave, professor of institutes of medicine, presided. This plant-lore was twofold—one part consisted in the knowledge of the characters whereby the several plants can be identified, and the other of the selection and preparation of such parts as were used in medicine. Out of the synthesis of these, with the corresponding kind of knowledge of the mineral and animal remedial agents, there was made up an incoherent and heterogeneous farrago, to which the name "materia medica" was given. All this at first had belonged to the province of institutes of medicine, but several causes concurred to produce cleavage in this unwieldy mass of knowledge. By the labours of Ray, Tournefort, and Linnæus botany had become a separate science and claimed attention on the one side, while, on the other, the publication early in the seventeenth century of the Pharmacopœia of the College of Physicians gave a concreteness to the subject of materia medica which rendered its separate treatment necessary. No longer was the student obliged to refer to Dioscorides, or to the Antidotaria great and small of Nicolaus, or even to the Dispensatorium of Valerius Cordus. In Edinburgh this separation was recognised in 1768 by the formation of an independent professorship of materia medica. This became, therefore, shorn away from botany, although the title "professor of medicine and botany" remained united in Edinburgh until about 30 years ago.

But other forces have been at work in modifying the development of these portions of medical study. Some of the new growing departments, such as physiology, now make large drafts on the student's time; therefore it has become

necessary to lighten the burden by cutting off all superfluities.

Systematic botany and zoology are deeply interesting sciences, but their bearing on the practical objective of medical study is remote. Each science, however, contains an element of permanent importance. In the plant some of the elementary processes of life and organisation are displayed on a large diagrammatic scale, and these can be apprehended more easily by observing them in the vegetable than in the animal. In the structure of certain animals we can see, also on a diagrammatic scale, the growth and development of tissues and organs which are not so easily observed in man, and some types preserve permanently conditions that are transitory in the human body. The examination of such forms is indispensable to help the student to understand the formation and grouping of the elements of the human organism. Therefore, while in most modern medical schools the great bulk of these systematic sciences has been removed from the curriculum, a new eclectic department has been constituted under the name elementary biology by the selection of such plants and animals as in the ways above indicated illustrate fundamental principles and elucidate conditions met with in the human body. As this new subject is intended to make human anatomy and physiology more easy of comprehension its study must take precedence of these, and it is now properly regarded as one of the most important parts of your education in the first year of your course. It is really the introductory chapter of these more special sciences, but to be of use it is essential that it should be a laboratory rather than a lecture course. We owe this great step in simplification chiefly to the influence of the late Professor Huxley, ably seconded by the work of the late Professor Rolleston of Oxford.

Another change in the direction of lightening the burden on the student is taking place by a natural process of evolution. The extraordinary jumble of facts which goes by the name of materia medica, and which has been so long an incubus, is undergoing a process of reformation by which in the course of time the greater part of it must be excised from the course. This change has taken place in some universities, but is bound to become general. When I was a student materia medica consisted of three groups of subjects that were essentially distinct from each other: the first, from which it derived its name, consisted of an account of the names, characters, and sources of the raw materials of the medicaments in use; the second, of the methods of preparing from these raw materials the several extracts and compounds that are used in prescriptions; and the third, of the physiological effects of these drugs.

The factor of commerce has come into operation here. The practitioner who requires medicaments can get them in the exact form in which he needs them for use from respectable firms of chemists whose character is sufficient guarantee for the purity of the materials and the care with which they are prepared. The whole of the first and most of the second group of subjects have therefore become obsolete. All that is essential for the student to know is the names and proportions of the active ingredients in the official preparations and their exact doses. If he have learned his chemistry properly (of which more anon) he will know how to avoid incompatibilities in his prescriptions. As for the third part, which is pharmacology proper, it cannot be taught satisfactorily by lectures but must be learned by observation in the physiological and pharmacological laboratories and in the wards of the hospital. To get a kind of bowing acquaintance with the appearances of the preparations, a short period of practical compounding work is all that is necessary, and beyond that the Pharmacopœia itself supplies all that the student needs to know.

In no branch of knowledge has the free inquiry, which was the spirit of the renascence, reaped such an abundant harvest as in the sciences which deal with matter and energy. Paracelsus and his followers of the Iatro-chemical school, in spite of their charlatanry, their futilities, and chimeras, deserve credit for having started those researches which broke down the puerile notions of the composition of matter that had held sway since the beginning of Greek philosophy; but it was Robert Boyle who finally freed chemistry from its magical associations and paved the way for its true development. Modern chemistry has grown to be one of the greatest and most far-reaching of the sciences, and every year its bearing on the problems which the physician has to solve becomes more intimate. A practical knowlege of chemistry is therefore an essential pre-requisite for the successful prosecution of medical study. Chemistry constitutes a large element of physiology and is a growing factor in pathology, while in pharmacology and therapeutics modern research has shown the close relations which subsist between chemical combination and physiological action. It is needless to say that in the eighteenth and nineteenth centuries chemistry was purified of its mystical elements; and studies of the alcahest, of the chalybs and chaos of the Sophists, of the magistery, and such like had disappeared from the requirements of the student. You cannot make any progress in these applied sciences of physiology and pathology unless you have laid a solid foundation of chemical knowledge. Therefore it has been universally recognised that chemistry must form an element in your studies during your first year.

The science of the forces of nature—experimental physics—has grown up side by side with chemistry and is an equally indispensable part of your first year's study. No development in modern medicine is more remarkable than the recognition of the importance of the mechanical and physical phenomena which form so large an element in physiology and of the physical methods of diagnosis and treatment. Thermometry and physical methods of thermotaxy, auscultation, ophthalmoscopy, and other kindred processes presuppose an intelligent knowledge of certain branches of physics, while the varied uses of electricity and the growing importance of photo-therapeutics will form a considerable element in your future practice. These physical methods have come to stay and you cannot know your business unless you have had a practical training in the use of physical apparatus in the laboratory. It is the knowledge of these subjects that makes the difference between the new medicine and the old. In the seventeenth century physic was deprived of its astrological connexions, although even down to the beginning of that period the surgeon's apprentice was required to know the 12 zodiacal signs and the student of medicine in Utrecht was recommended in 1638 by Heurnius to acquaint himself with the planetary ephemerides. No longer is it of importance to remember such aphorisms as that of Cardan that no surgical operation should be performed while the sun is in Scorpio.

I have said enough to show that it is in accordance with a strictly logical principle that you are put to study these three sciences, chemistry, physics, and biology in your first year. When you have passed your examination in these you are not done with them. You must carry your knowledge of them all through your life and the man who neglects them in his first year will be haunted through life by the ghost of his lost opportunities, spectres whose persecution will at last oblige him at a later stage to waste precious time in the belated attempts to acquire knowledge that should have been learned long before. *Carpe diem, quam minimum credula postero.* And what is true of these is equally true of the studies of your second and third years. You are not studying anatomy and physiology to pass your examinations but to use your knowledge of them in after life. All these sciences are the tools the use of which you have to learn in the period of your apprenticeship, and he is an inept workman who throws aside his tools when he becomes a journeyman or master. Modern medical practice is the application of these sciences to the treatment of disease or accident.

I have exhausted your patience in dealing with the history of the first and second stages of the training that you are about to undergo, so I shall trace the evolution no farther in detail, but the process is going on and leading to differentiation in the final studies of your course. At all periods attendance at hospital or some equivalent thereto has been obligatory but it is in the memory of some of us that until about the middle of last century arrangements for clinical instruction were often haphazard and unorganised. I well remember being one of a mob of students who followed the surgeon round the wards on the chance of picking up some crumbs of wisdom from him and I also know that not a few of my class-fellows got their licences to practise without ever having put on a bandage, "taken" a case, written a prescription, or used a stethoscope. With the admirable system now in use in all hospitals this state of things would be an impossibility. Every man must put his hand to the work and must give evidence of practical knowledge, not only in general medicine, surgery, and obstetrics but in diseases febrile, topical and tropical, hygiene, preventive

medicine, and the varied subjects grouped under the heading "Public Health," and in medical jurisprudence.

When Morgagni in 1760 published his great work on pathology, "De Sedibus et Causis Morborum," that subject consisted simply of what is now called morbid anatomy. 50 years ago the student might or might not pick up a little knowledge of this by attending post-mortem examinations often hastily and perfunctorily made. Now this branch of instruction is practical and systematised and in addition pathology has become a living science. The discoveries of Pasteur have rendered necessary a course of practical work in the bacteriological laboratory. Those of Virchow and a host of others too numerous to mention have made it a matter of obligation that the causes and effects of morbid action should be studied microscopically and chemically in the pathological laboratory. Here I cannot help mentioning, in passing, the name of one of the pioneers in pathology in England, Matthew Baillie, physician to this hospital.

But I must leave the rest of the history unsaid, warning you, however, that it will not be long before another and equally important subject will be added to the curriculum. The course has been constructed on the hypothesis that man is only a body, but, as you will find when you come to deal with the sick, you have to reckon with a psychological element as well which cannot be ignored. At present the student has no training in the science of psychology but is left to the untrained exercise of his common-sense to deal with the perplexities of such problems as they turn up in his practice. This deficiency must in the future be supplied but meantime you have the doubtful privilege of escaping this extra subject.

The physician's groundwork is a knowledge of physics, chemistry, biology, anatomy, physiology, and pathology—truly a terrifying array! "ὁ βίος βραχύς, ἡ δὲ τέχνη μακρή, ὁ δὲ καιρὸς ὀξύς, ἡ δὲ πεῖρα σφαλερή, ἡ δὲ κρίσις χαλεπή," says the father of medicine. The fourth clause of this familiar aphorism has in it a warning note in a sense not dreamt of by Hippocrates. A change is being made in medical education at the present day that may be fraught with peril. Until lately in the various scientific departments of the developing curriculum the teachers have been men who have completed their medical training and who have some experience of the requirements of practice. This may have had some disadvantage, as it tends to limit the range of the teaching, for science grows so fast that it is difficult for a man who has any other occupation to keep himself abreast of its progress. But against this must be set the manifest advantage that it secured that all branches of the teaching were subordinated to the great end of all medical training—the making of skilful and enlightened practitioners. But within the last few years the greater degree of specialisation has caused a more perfect division of labour to be made and each science is being taught by a specialist. When such teachers are men who have had a complete medical training and some experience of the needs of the physician the new system is an unmixed advantage, but if the teaching be committed to a pure specialist who has had no opportunity of learning what parts of his subject are those particularly required by the student in his after-life the position is one that may be prejudicial. Whenever any one of the scientific subjects instead of being regarded as a means to an end is exalted into an end itself there is a necessary alteration in the centre of gravity of the teaching and there cannot fail to be a change of perspective in the view of the subject as it is presented to the student. To some extent the danger is mitigated when the examiners in such subjects, having been in practice themselves, realise by experience what portions and what extent of any science are essential for the candidate to know, but even in this case there is the peril that the areas of teaching and of examination may not coincide, an unlucky discrepancy for the student. But if the examination as well as the teaching fall into the hands of the non-professional expert this safeguard will be removed and the student who passes the most brilliant scientific examination may be inefficiently equipped for the practical application of his knowledge. For in all the ancillary sciences, and not the least in anatomy and physiology, parts which are of the greatest interest from the standpoint of pure science are often the least important to the practitioner, and *vice versâ*. If the student be able to devote a larger amount of his time than that usually allotted for these sciences all will be well, but with the small period allowed in the ordinary curriculum the matter may be momentous and grave. The only remedy, that of teaching by schedule, is attended with its own disadvantages and difficulties. But this is a matter not for you but for the higher powers.

The period of ordeal has expired and I close with this final thought. The knowledge that you acquire here is a trust committed to you for the benefit of humanity and according to the way in which you discharge that trust will be the respect in which you will be held by your fellow men. "I hold every man," says Bacon, "a debtor to his profession, from the which, as men, of course, do seek countenance and profit, so ought they of duty to endeavour by way of amends to be a help and ornament thereto."

Abstracts
OF
INTRODUCTORY ADDRESSES, ETC.
DELIVERED AT THE
MEDICAL SCHOOLS
AT THE
Opening of the Session 1904-05.

MIDDLESEX HOSPITAL.

INTRODUCTORY ADDRESS BY FRANK J. WETHERED, M.D., F.R.C.P. LOND., ASSISTANT PHYSICIAN TO THE HOSPITAL AND TO THE BROMPTON HOSPITAL FOR DISEASES OF THE CHEST.

Dr. Wethered said:—It has long been an honoured custom in this as well as in other medical schools that the winter session should be opened by a gathering designed partly to distribute the prizes and awards gained during the past year by students connected with the hospital and partly to welcome those who come for the first time amongst us and who are about to commence their strictly professional studies. It is for the latter purpose that the "Annual Address" is intended and it has fallen to my lot this year to offer that welcome. The object of the five years' curriculum is to fashion you into well-qualified medical practitioners. In order to pass the requisite examinations you will have to possess yourselves of certain knowledge. You will naturally wish to pass each examination at the first attempt and in order to do this I strongly recommend you to remember one word, "practice." Theoretical knowledge is, of course, also requisite but above all things you must be practical. Reading and attendance on lectures are certainly essential. Reading enables you to supplement the knowledge you have obtained by practical work and the lectures will assist you in systematising that knowledge. Throughout the whole of your student days you will do well to remember that for book-learning there is a substitute—practical work; for practical work there is no substitute. To see much and to see it well is the sole means of attaining perfection in all the sciences of observation.

The necessity for practical work will commence from the first day of your studies. For instance, anatomy can only be learned by actual dissection and you should therefore spend several hours daily in the dissecting room. The same principle, although with perhaps a little less force, applies to physiology and chemistry—work in the laboratories will engraft facts in your memory as nothing else will. More particularly I would lay stress on the fact that it is impossible to learn medicine and surgery from books. A knowledge of these subjects can only be obtained by observation and study of the patients in the wards and out-patient rooms. Speaking in the broadest sense, medicine is not only a science, it is a practical art. As an art medicine is infinitely difficult; the phenomena with which we have to become acquainted are so numerous, so various, so complicated, that not only natural talents but long observation also are requisite to make us familiar with them.

I need scarcely remind you that all who follow the medical profession must be students for ever, students as much in the fifth year of their curriculum as in the first, students as much at the end of their life's work as when confronted with their earliest patients. A physician or surgeon may draw a lesson from every case which he sees, and here again

we find the difference between book-learning and the knowledge which is the outcome of practical observation. To a certain extent the need for book-learning may be finite and in a great measure this need is modified by the idiosyncrasies of the individual. But no man, from the moment that he places his foot on the lowest rung of the ladder of medicine, can dispense with practical observation or its results. This need is never finite.

To carry the subject of theory and practice in another direction. It is the custom of medical practitioners to give precise directions as to the amount and kind of exercise their patients should take. Should not the practitioners set the example of what they preach? I would ask you as students to commence that practice early. If the embryo physicians and surgeons would pay more attention to the study of physical improvement as exemplified by gymnastics and manly sports, I believe that it would be to the benefit of the community in general. We should then hear less about the physicial degeneration of the nation and the country might be spared the expense of appointing another committee to inquire into the matter. It is now a recognised fact that a man can excel in his studies as well as in athletic pursuits and there is no reason why a healthy participation in manly games should interfere with professional duties. It is usually a fatal error for anyone who has been accustomed to an active life to give up all forms of regular exercise, still worse is it when the lassitude is due to indulgence in alcohol, tobacco, and late hours. A greatly improved tone has been apparent amongst the boys of public schools since games have been made compulsory and loafing has been sternly discountenanced. The continuance of some form of physical exercise after school life has scarcely been sufficiently insisted on by many medical men. Moreover, the regular pursuit of some form of athletics greatly raises the moral tone of a man. The individual who wishes to improve his physical powers must cultivate habits of temperance and self-control. Evil habits, which the self-indulgent and slovenly man so easily falls a prey to, are obnoxious to the athletic and healthy-bodied, for late hours and their numerous evil consequences will be perforce eschewed. Let the medical student, then, learn to live that he may be able to draw from his personal experience when in the future he advises his patients as to the best ways of keeping well.

An opening address at the present day can scarcely be considered complete without some reference to the University of London. In the history of that institution I venture to suggest we have another illustration of theory *versus* practice. It seems strange that for so many years the largest city in the world has not possessed a teaching university. Hitherto the students of the London schools who desired to obtain a degree of Doctor of Medicine had either to pass what is practically an honours degree or else to complete their professional education at a provincial or foreign university. The University of London was for many years a theoretical university, simply an examining body. Now, however, it is gradually blossoming forth into a practical or teaching one. The concentration of the earlier professional studies will probably be one of the first developments of the new *régime*, and for this purpose a strong effort is being made to give practical effect to the recommendation of the Royal Commissioners appointed to consider the charter in 1894. For this purpose steps are being taken to secure a site and funds to enable the Senate to establish an Institute of Medical Sciences in the near neighbourhood of the University. The advanced studies will then be carried out at the various hospitals which would then become veritable clinical schools. It is to be hoped that we shall see chairs of medicine and surgery endowed at the University so that the professors who are appointed may be able to devote their whole energies to educational purposes.

In conclusion, I would remind you that the great element of success in professional life is the accumulation of experience. That experience can only be obtained by constantly applying yourselves to practical work. If during your student days, and subsequently when you hold resident appointments, you make full and intelligent use of the countless opportunities which will present themselves of observing the course of disease, you will never repent the labour thus expended. You will thus early gain the confidence of your patients, and may it be said of you:—

> "His years but young, but his experience old,
> His head unmellow'd, but his judgment ripe."

UNIVERSITY COLLEGE, LONDON.

INTRODUCTORY ADDRESS ON THE RELATION OF CHEMISTRY TO MEDICINE BY JOHN NORMAN COLLIE, PH.D., F.R.S., PROFESSOR OF ORGANIC CHEMISTRY AT THE COLLEGE.

Professor Norman Collie said:—In dealing with the subject, the Relation of Chemistry to Medicine, it is quite impossible in an address to do more than merely touch on the many important relations of chemical science to that of medicine. Even in the earliest times the manufacture of drugs, the production of new ones, also many of the theories explaining the physiological action of medical compounds, were all largely due to chemists. Nowadays, owing to the enormous progress in science, it is more than ever imperative that the medical man should be able to follow much of the work being done in chemical laboratories. In former times the alchemist during his search for the philosopher's stone or the elixir vitæ was always producing new substances; these, although they did not fulfil the desired aim, yet served in the hands of the physician often as valuable drugs. Again, the chemist by his analytical methods helped medicine largely in many ways, testing, purifying, and improving drugs and foods.

Although the Egyptians possessed a considerable knowledge of both chemistry and medicine it was not till from the eighth to the tenth century that there was any historical connexion between the two. The Arabians at Bagdad and the Moors at Cordova established universities which became famous throughout the civilised world. Public hospitals and libraries of vast size for the study of diseases and the preparation of medicines existed and students flocked there from all Europe, the materia medica of the Arabians consequently being a great improvement on that of the Greeks and Romans. The chief writer of that date was Avicenna, most of whose chemical ideas were borrowed from the Arabian chemist Geber. After the decay of the power of the Moors in Spain there was no further progress for several centuries. Early in the fourteenth century an alchemist, Basil Valentine, benefited medicine by bringing into use antimony salts; his writings, however, were extremely obscure.

At the end of the sixteenth century was born a man whose writings revolutionised both chemistry and medicine. Paracelsus, a man in many ways most contemptible, yet was one of those who have left their mark in history. It was Paracelsus who raised the latent energies of the human mind that had been torpid for so many centuries. He advocated the importance of chemical medicines and of chemical investigations to the physician. As a result a vast collection of new drugs were prepared and tried. Some of these were better and some of these were worse than the medicines of the Galenists. After Paracelsus the ideas promulgated by van Helmont and the Iatrochemists produced another revolution in both medicine and chemistry. These ideas, which were a mixture of deductions drawn from the chemical facts of these days, of spiritualism, and of a vast number of wild theories and speculations, ruled supreme in the medical world till Robert Boyle towards the end of the seventeenth century was largely instrumental in overturning these absurd doctrines by means of a lengthy treatise called the Sceptical Chemist.

After Boyle's time for almost a century the chemical, and through it the medical, horizon was darkened by another erroneous theory: the Phlogiston theory. Also in the meantime chemical knowledge was getting more out of touch with that of medicine. The discovery towards the end of the eighteenth century of the most common of the vegetable acids by Scheele, and later the isolation of many of the pure active principles of plants, were valuable to the physicians. But in those days the chemist was engaged chiefly on facts dealing with the atomic theory and the ultimate constitution of matter; the questions as to the constitution of the molecular composition of starches or of albumins, or the nature of the action of ferments—these were entirely beyond his powers. In fact, even at the present time, the chemist is the first to admit that the chemistry of the living plant or animal is by far the most difficult and at the same time one of the most fascinating problems of the science.

The chief discoveries in chemistry during the last half of the nineteenth century that have a bearing on medicine are extremely numerous. Anæsthetics, antiseptics, and new drugs are some of the more obvious. Indirectly the work

of Fischer on the sugars is also of interest. Not only has he produced synthetically grape and fruit sugar but he has also made a large number of artificial sugars. Most of these he has found to be undecomposed by such ferments as yeast. Again, others are decomposed by ferments more rapidly and are probably of more value as foods; and as the sugars and the allied starches (albuminoid substances excepted) are the most important of all foods, their chemical investigation is of the highest importance to the medical man. This question of the action of ferments must ultimately be answered by the chemist, and as these processes of fermentation are largely connected with vital phenomena their significance cannot be over rated.

The physiological action of toxins and antitoxins has for some time largely engaged the attention of medical science, but it will probably be the chemist, after he has determined their molecular structure, that will be able to explain how and why they are produced. In the process of the assimilation of food the changes that occur are purely chemical. The composition of the various secretions also can only be arrived at by an analysis in a chemical laboratory. The composition of the excreta is also of the utmost importance in diagnosing whether the living machine is in proper working order and whether each particular organ is producing its own proper waste products. In every case the chemist must be consulted; he may be a pathological, a physiological, or a pure chemist. Physicians, the scientific representatives of practical medicine, to be eminently successful in their profession must without doubt be able to understand the general aims and objects of these various branches of chemistry, and this they are unable to do unless they have at least mastered the elements of the science. In the case of specialists it is even more necessary, for the human body is the most wonderful laboratory in existence. In it the raw material is changed to the most complex products. These in turn are used for their proper purposes, thrown aside, and finally got rid of. It is the province of the physician to keep this marvellous laboratory in working order; but how is this possible should he be ignorant of the general method of how these changes go on? It is useless to expect that by merely oiling a motor-car the effects of using bad petrol or of defective sparking can be eliminated. Obviously, therefore, the medical man who is able to understand the bearing of chemical research on the problems connected with this human laboratory is far more competent to direct the working of it, for he has a wider horizon, more knowledge, and consequently greater power.

SCHOOL OF PHARMACY OF THE PHARMACEUTICAL SOCIETY.

INAUGURAL ADDRESS BY A. W. CROSSLEY, D.SC. VICT., PROFESSOR OF CHEMISTRY TO THE SOCIETY.

THE address may be briefly summarised as a plea for the fuller and wider recognition of pharmacy both as a science and as a profession. To this end Professor Crossley addressed his remarks directly to the students present, urging upon them the great responsibility which they had undertaken. His experience as a member of the Examining Board of the Pharmaceutical Society had shown him that few of the candidates approached their work in a really scientific spirit but that rather they adopted the British Pharmacopœia as the alpha and omega of the life of a pharmacist, as if anything not contained therein was neither of them nor for them. Candidates often failed to realise their individual responsibility or the magnitude of the task that they had set themselves in aspiring to a knowledge of pharmacy. He then proceeded to consider the claims of pharmacy to rank as a profession in addition to being a great applied science. He deplored the lack of the use of scientific knowledge which characterised so many business men in this country and had, perhaps, fostered the great distinction made between business and profession. Knowledge in the wide sense was deemed the monopoly of the professions but rightly regarded nothing was more necessary to the engaging in any large business than a thorough and scientific comprehension of the underlying causes which influenced that business. According to one distinction the buying and selling of tangible goods was a business, whereas the dispensing of knowledge was a profession. But surely there was scant difference between the actual processes of buying and selling goods and of buying and selling knowledge. "It is not the actual method of procedure which distinguishes between a business and a profession but the difference is rather due to the character, work, and mental powers of those engaged, which if of a sufficiently high order may raise any calling to the rank of a profession." Professor Crossley quoted passages from Ruskin's "Unto This Last," in which the five great intellectual professions were defined as those of the soldier, the pastor, the physician, the lawyer, and the merchant. The merchant, it was argued, had scope equal to that of any other calling for becoming a great professional man. Pharmacy consisted not merely of a knowledge of simple chemical bodies but also of acquiring an insight into the methods of extraction, purification, and properties, both chemical and physiological, of some of the most complicated vegetable substances. Pharmacy was thus one of the greatest of applied sciences and also had clearly a double claim to rank as a profession, for the pharmacist must be considered as being in part a merchant and in part a physician. Professor Crossley strongly urged the necessity for every student of pharmacy and for every pharmacist to engage in research at every stage of their career. The lack of observation, he suggested, was the primary reason why research was so rare among students. This want of observation was fostered by the text-books of the day in which all problems were so fully elucidated that little or nothing was left to stimulate the reasoning powers of the student himself. It should be the endeavour of every student to spend some time in a research laboratory, for it was there, and there only, that any serious attempt was made to teach a student to observe and to think for himself. Following this train of thought he dwelt at some length on the inroads which physics had made into the domain of chemical research and said that he would have every student who wished to advance in his profession acquire all possible knowledge of physics, including a necessary amount of mathematics. This need had evidently been recognised by the Pharmaceutical Society which had recently made extensive alterations and additions in its school for the teaching of practical physics.

ON EXCLUSION OF THE INTESTINE.

BY B. G. A. MOYNIHAN, M.S. LOND., F.R.C.S. ENG., SENIOR ASSISTANT SURGEON TO THE LEEDS GENERAL INFIRMARY, ETC.

BY the term "exclusion of the intestine" is meant the rendering inactive any part of the intestinal canal by surgical means. When entero-anastomosis is performed the length of intestine which lies between the two openings is "excluded." When the intestine is cut across, the distal end closed and the proximal end united to the side of the distal, the part of the gut which lies between the two points dealt with is "excluded." When, finally, the intestine is divided at two points and the proximal end of the upper and distal end of the lower are closed, left open, or united, the intervening portion is "excluded."

In the operation of entero-anastomosis as suggested by Maisonneuve the exclusion is certainly not always complete. Le Dentu[1] in two cases of intestinal fistula united the gut above to the gut below the opening in the hope that the current of intestinal matters might be caused to deviate and that thereby the fistula might close spontaneously. The fistula, however, continued to discharge in each case. Similarly, in a case of ileo-sigmoidostomy performed for obstruction due to a growth in the hepatic flexure I made a small opening in the cæcum to give vent to a large collection of fæces and flatus. The growth in the colon was subsequently excised but for several weeks there was some escape of fæces through the typhlotomy opening.

The following forms of intestinal exclusion are recognised:—1. Entero-anastomosis, as suggested by Maisonneuve. The "short-circuiting" of English writers (Fig. 1). 2. Entero-anastomosis with constriction by suture of the part distal to the upper opening (Fig. 2). 3. Unilateral exclusion. When the gut is divided completely across and the proximal end is implanted into the side of the distal. The distal end may be closed or may be left open (Fig. 3). 4. Bilateral exclusion. When the bowel is divided at two

[1] Revue de Gynécologie et de Chirurgie Abdominale, Paris, 1898, vol. iii., p. 81.

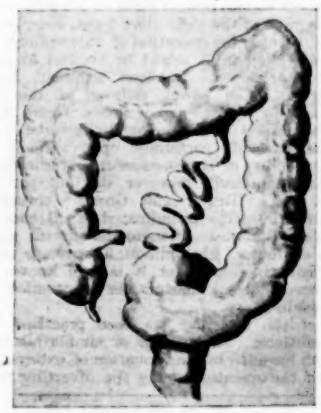
FIG. 1.

Intestinal exclusion, entero-anastomosis.

FIG. 2.

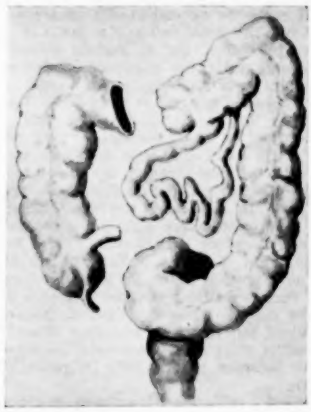
Entero-anastomosis with constriction by suture of the part distal to the upper opening.

FIG. 3.



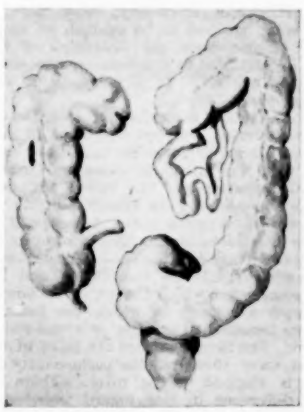
Unilateral exclusion.

FIG. 4.



Bilateral exclusion, the distal end of excluded gut left open.

FIG. 5.



Bilateral exclusion. Both ends of excluded gut closed—fistula.

places and the intestinal channel is restored, leaving a segment of the bowel detached. Of this segment one end may be left open and stitched to the skin (Fig. 4) or both ends may be closed when a fistula exists in the bowel lying between them (Fig. 5).

In all operations of this kind it is desirable to open the abdomen, if possible, in the middle line. The incision should be made at a distance from any fistula or any skin involvement. In such circumstances it may be impossible to obtain a clear view owing to complex adhesions, or even to open the peritoneal cavity without wounding or perhaps opening some adherent coil of the bowel. When the peritoneum has been opened the intestine leading to, and coming from, the involved segment is defined. This is not always an easy matter, especially when many adhesions are present. It is desirable to work from some fixed point, the cæcum by choice or the duodeno-jejunal flexure. When the proximal and distal portions of the bowel have been recognised the former is divided completely across. The method of dividing it depends upon the purpose of the operator. If an end-to-end or end-to-side anastomosis is to be performed it is divided between two clamps, the blades of which are sheathed with rubber tubing. If the ends are to be closed and a lateral approximation is to be made (which is the method of choice when the small intestine has to be united to the larger) then the bowel is crushed by forceps, which divide all the coats except the peritoneum, two catgut ligatures are applied in the groove left when the forceps

are removed, and the bowel divided between the ligatures. The stump on each side is then buried by a continuous suture.

In unilateral exclusion an end-to-side anastomosis is performed. As a rule the distal end at the point of division of the bowel may be closed, but in certain circumstances it may be left open, either for purposes of drainage or to afford an opportunity for the irrigation of a septic area.

In bilateral exclusion one end at least of the sequestrated segment must be left open. As a rule this should be the distal opening, so that peristalsis may help in its emptying. If both ends are to be left open they may be brought out side by side through the same incision, not necessarily the original incision, or a separate opening may be made for each. In rare cases the loop thus cut off may be short and may have a free opening with the surface; both ends may therefore be closed. This, however, is neither prudent nor desirable. Vautrin has urged that when the excluded portion of the gut is infected or sloughing and foul from cancerous ulceration the two ends should not be laid side by side, so that the channel from one to the other is circuitous, but that two openings should be made, one for each end of the gut, which should lie untwisted and free from kink between them. Free irrigation of the coil is then possible.

When bilateral exclusion has been performed some operators have closed both the ends of the sequestrated coil. This practice has indeed been advocated by Obalinski, but in a later publication he decides that it is inadvisable in the case of the small intestine though permissible when the large intestine alone is involved. The practice has led to disaster. In many cases (Eiselsberg, Delagénière, Roux) the excluded intestine has had to be opened, as symptoms of urgency were arising from the distension of the bowel. There can be no hesitation in condemning unequivocally any adoption of this method. It is unsound in theory and disastrous in practice.

In cases of unilateral exclusion the question has arisen as to whether the bowel between the point of division and the point of the lateral anastomosis undergoes any change. Experimentally it was found by Senn and others that it tended to undergo atrophy. The bowel withered and its lumen became lessened and its vessels thin and shrunken. In the majority of recorded cases, however, it has been found that the intestinal contents have tended to pass backwards and fistulæ in the excluded coil have continued to discharge. According to Delore and Patel[2] and Hartmann[3] the only occasions upon which the excluded bowel remains absolutely empty are those in which the ileum has been divided near its termination and the proximal end implanted into the colon. The ileum between the point of section and the ileo-cæcal valve then remains permanently empty, for regurgitation is stopped at the valve. There is, without doubt, some difference in this regard between unilateral exclusion performed upon the large and upon the small intestine. When performed upon the small intestine it is known both by experimental evidence and as the result of operations upon man that the excluded loop is constantly filled with fæcal material. If the proximal end of the excluded loop remains open to the surface the discharge from it rarely ceases for more than a few hours. A fistula therein does not close. Unilateral exclusion of the small intestine does not offer, therefore, any advantages, either immediate or remote, over the entero-anastomosis of Maisonneuve. In the large intestine the conditions are slightly different. When the ileum is divided near its termination and the proximal end is implanted into the ascending colon there is some backward flow as far as the ileo-cæcal valve. The lower end of the ileum remains empty. If the proximal end be implanted into the sigmoid flexure there is little or no flow backwards along the descending and transverse colon during the early period. At a later stage of the case there may, however, be some passage of fæcal material backwards towards the cæcum. Drucbert, in his experimental work upon dogs, found that during the first few weeks after the operation the motions were frequent and fluid in character. As time passed they became less frequent and more solid and eventually the bowel movements were natural both in frequency and character. If the intestine was examined during the early stage the colon was always found empty and flaccid; during the later stage the colon had come to act as a reservoir from which a surplus quantity was from time to time discharged. These observations are confirmed by the experiences in man. In a case of unilateral exclusion, the ileum being joined to the sigmoid flexure, Jaboulay found that at first the motions were frequently discharged and were always fluid; after a time they became semi-solid and at last normal. Körte has recorded a case of tuberculous disease of the cæcum treated by excision, followed by the implantation of the ileum into the sigmoid flexure. After the anastomosis had been completed the colon was narrowed by sutures in order to prevent regurgitation towards a fistula in the ascending colon. For six and a half months there was no discharge from the fistula; at the end of that time, however, fæces again passed through it. Körte then cut across the colon at the splenic flexure and closed both ends. The fistula ceased to discharge. The conclusion to be drawn from the evidence furnished both by experimental work and by experience of cases in man is that unilateral exclusion of the small intestine offers no advantages over entero-anastomosis and in the large intestine does not prevent, at any rate for more than a short period, the backward flow of fæcal matter.

The operation of bilateral exclusion has long been known as a laboratory method of cutting off from the intestinal current a segment of intestine for the purpose of studying the nature of the intestinal juice. A certain length of intestine is cut out, the intestine above and below it is united, and both ends of the loop are completely closed. A fistula is then made to the middle of the loop. This method of investigation was first suggested by Thiry in 1864. It was modified by Vella who, instead of closing the ends, left them both open and brought them to the surface. The fistula is generally known as the "Thiry-Vella fistula." Lance[4] has collected the notes of 76 cases of bilateral exclusion performed in man. In eight cases it has been practised upon healthy intestine for the purpose of causing to close a fæcal fistula resulting from operation or from strangulated hernia. All the cases recovered; in three a subsequent removal of the fistulous loop was successfully performed. In the remaining 68 cases the exclusion was practised for various lesions, such as chronic invagination, chronic colitis, tuberculosis of the large intestine, cancer, pyo-stercoral fistula, and vaginal fistula. In no cases was there any ill effect attributable solely to the method. As a rule when a fistula from the excluded loop was not already present the two ends of the intestine were brought to the skin and sutured there. This procedure is sometimes known as "Hochenegg's method" of exclusion. The pre-existing fistulæ closed in all the cases except those in which malignant disease was present. As a rule, only one end of the loop remained permanently open, the other gradually dwindling in size and eventually becoming quite closed.

Exclusion of the intestine was first performed in man by Trendelenburg on Dec. 2nd, 1885. It is, however, to von Hacker that we owe the first deliberate suggestion, put forward in 1888, that complete exclusion of the intestine might be a successful means of treating certain lesions of the bowel complicated with adhesions and fistulæ. The suggestion did not attract general attention, it had indeed passed almost without recognition until Salzer in 1891 and in 1892 gave it prominent advocacy. In reviewing a series of clinical records Salzer endeavoured to show that in cases of diffuse phlegmon in the right iliac fossa, complicated by adhesions and fistulæ, the operation of enterectomy, always serious and not seldom fatal, might be avoided by an operation which detached the involved segment from the intestinal current. The bowel, relieved of the constant irritation aroused by the passage of fæces, would then tend to heal and the patient would be thereby restored to health. A series of experiments performed upon animals demonstrated the possibility of the successful performance of the operation. Salzer himself, however, did not perform the operation in man. Terrier and Gosset[5] consider that exclusion of the intestine is indicated in all cases where there is a mechanical obstruction to the onward passage of the intestinal contents. The opinion, however, is not borne out by practical experience, for it is well known that in certain instances a lateral anastomosis is attended by most satisfactory results.

Exclusion of the intestine has been practised for the following conditions. Tuberculous or simple ulcers of the intestine which have led to the formation of external fistulæ, the purpose of the operation being the diverting the fæcal

[2] Delore and Patel: Revue de Chirurgie, 1902, pp. 669 and 797.
[3] Hartmann: Gazette des Hôpitaux, Oct. 3rd, 1903, p. 1125.
[4] Lance: Thèse de Paris, 1903, No. 348 (contains a list of all recorded cases).
[5] Terrier and Gosset: Revue de Chirurgie, 1901, vol. xxii., p. 79.

current and the giving rest to the diseased portion of the bowel. In intestino-vaginal fistula following hysterectomy a bilateral exclusion is performed and the sequestrated loop drains into the vagina. The discharge soon lessens and within a few weeks becomes almost imperceptible. In cases of cholecystenterostomy; the gall-bladder is joined to the portion of bowel cut off by unilateral exclusion. In chronic invagination; the operation has been performed on three occasions. In cases of artificial anus and fæcal fistula; in these conditions other operations are always to be preferred. In cases of colitis an entero-anastomosis or a unilateral exclusion, the ileum being joined to the sigmoid flexure, has been performed with marked relief to the inflamed and perhaps ulcerated bowel. In chronic intractable constipation unilateral exclusion has been performed; the ileum has been divided about one foot above the ileo-cæcal valve and the proximal end implanted into the sigmoid flexure or the upper end of the rectum.

The operation of exclusion of the intestine is chiefly necessary in cases of chronic inflammatory disease, probably tuberculous, involving the bowel and leading to external fistulæ; in cases of inoperable carcinoma of any part of the large intestine, especially of the cæcum and ascending colon; and in rebellious cases of muco-membranous colitis. From what has been said it will be recognised that unilateral exclusion, save in cases of disease affecting the lower end of the ileum, offers no advantages over lateral anastomosis, and that bilateral exclusion affords the best means of dealing with certain diseases, chiefly tuberculous and malignant, in the cæcum and colon, and with fistulæ between the small intestine and the bladder or vagina.

For the drawings which illustrate this paper I am indebted to Miss Ethel Wright.

Leeds.

SIX CASES OF SPLENIC ANÆMIA IN ONE FAMILY.

BY J. W. SPRINGTHORPE, M.A., M.D. MELB., M.R.C.P. LOND.,

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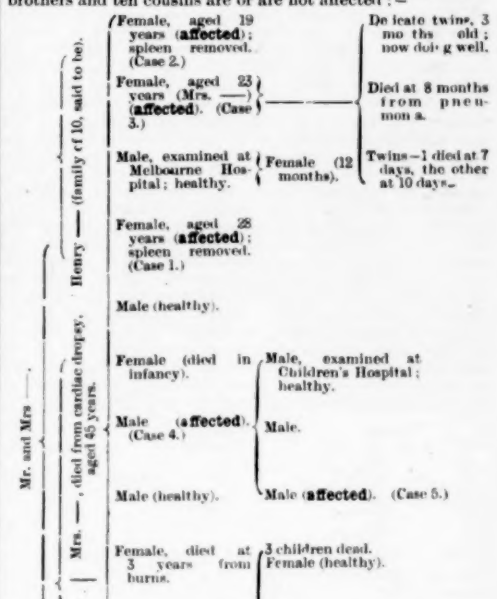
With Remarks on Two Cases in which Splenectomy was performed, by R. A. STIRLING, M.D. Melb., *Surgeon to the Melbourne Hospital.*

MODERN medicine is increasingly concerning itself with conditions of the blood. We find bound up therein the great questions of heredity, vulnerability, and immunity. We use the blood for serum diagnosis and treatment; we make from it leucocyte counts before operations; we think of it as fed from the gastro-intestine, perfected by internal secretions, purified by the excretory organs, and undergoing in the capillaries all the anabolic and katabolic metabolisms that accompany functional activity, growth, and decay. We find in it also germs, protozoa, filaria, we recognise its response to attack in defensive proteids and antitoxins, and in some cases we even imitate this specific adjustability. Gradually, too, we are coming to understand the significance of its different parts, its alkalinity, its oxidations, and its coagulation. Already we have reason to believe that the erythrocytes are the carriers of oxygen and proteid; that normoblasts make for blood regeneration and microblasts and megaloblasts for blood degeneration; that the polynuclear cells are phagocytes; that the myelocytes are marrow cells and the lymphocytes the products of the adenoid tissues, though we can still only guess at the functions of the eosinophiles, basophiles, mast cells, and blood plaques. We are thus clinically interested in leucocytosis, lymphocytosis, leucopenia, eosinophilia, oligocythæmia, polycythæmia, polychromatophilia, and the great divisions of anæmia, primary and secondary.

Of all forms of anæmia, those connected with splenic enlargement are amongst the most interesting. The function of the spleen is still an unsettled matter. According to Wolff it contains indifferent cells, which normally produce non-granular leucocytes, though if the function of the bone marrow be upset then it can produce granular leucocytes and even erythrocytes. Clinically, we find an enlarged spleen present in leukæmia and Hodgkin's disease and in anæmias due to gastro-intestinal infection, rickets, syphilis, malaria, hepatic cirrhosis, malignant amyloid and hydatid disease. But there are special forms of obscure origin, known as splenic anæmia, found in infants as well as in adults. (*a*) The splenic anæmia of infants is well described by Hutchison in the late Goulstonian lectures.[1] The patient is usually from six to 24 months old and mildly rickety. The liver is enlarged as well as the spleen; there is no great tendency to hæmorrhage; the blood picture is that of a severe anæmia, with a marked polymorphism, some leucocytosis, some myelocytes, and a marked increase in mast cells. The cases are of short duration, recovery is frequent, and death, if it occur, is due generally to bronchopneumonia. The pathology is not peculiar—simply a chronic splenitis, affecting chiefly the pulp. Hutchison considers the cause not rickets or syphilis but toxic infection from the intestinal flora. (*b*) Quite different is the splenic anæmia of adults (though Hutchison considers that this variety also occurs at times in children after second dentition—i.e., when the blood has assumed adult characters). The anæmia is profound and attended with hæmorrhages, gastro-intestinal disturbances, icterus, and pyrexial attacks. The splenic enlargement is uniform, very marked, and painful. The blood picture is a leucopenia, with an anæmia of the pernicious type in advanced cases, and relative lymphocytosis (a full diagnostic table will be found in Da Costa's "Hæmatology," p. 234).

In leukæmia, on the contrary, there are leucocytosis and the myelocytic type of blood; and in Hodgkin's disease, though the blood picture may be identical, the spleen is much smaller and the lymphatic glands are enlarged. In syphilis there are, in addition to the recognised clinical signs, an even more marked oligocythæmia, a very low colour index, and a noticeable leucocytosis of the lymphocyte type. The series which I am now recording is apparently unique. It contains three sisters and one brother, with his son and niece. The family tree is appended. It has been impossible, so far, to determine whether the other two brothers and ten cousins are or are not affected:—


Mr. and Mrs ——
Henry —— (family of 10, said to be).
Female, aged 19 years (affected); spleen removed. (Case 2.)
Delicate twins, 3 months old; now doing well.
Female, aged 23 years (Mrs. ——) (affected). (Case 3.)
Died at 8 months from pneumonia.
Male, examined at Melbourne Hospital; healthy.
Female (12 months).
Twins—1 died at 7 days, the other at 10 days.
Female, aged 28 years (affected); spleen removed. (Case 1.)
Male (healthy).
Mrs. ——, died from cardiac dropsy, aged 45 years.
Female (died in infancy).
Male, examined at Children's Hospital; healthy.
Male (affected). (Case 4.)
Male.
Male (healthy).
Male (affected). (Case 5.)
Mr. ——, aged 66 years (healthy).
Female, died at 3 years from burns.
3 children dead.
Female (healthy).
Male (healthy?)
Female, died from cardiac dropsy aged 27 years.
Female (affected). (Case 6.)
Male, aged 40 years (healthy?)
Female (healthy).
Male (healthy).
Male (healthy).

[1] THE LANCET, May 14th, 1904, p. 1223.

There is no family history of congenital syphilis or of syphilis having been acquired in any of the cases, except perhaps one. All the family were born at Portarlington, came to South Melbourne in 1885, and have ever since lived there or in Brunswick.

CASE 1.—This patient, who was a female aged 28 years, first came under notice in May, 1903. She had typhoid fever in 1884 at eight years, measles slightly at 13 years, and bilious attacks with vertigo till 15 years; she was at home working hard till 16 years. The catamenia occurred at 21 years and were regular till January, 1903. She was strong till 1885, when she severely scalded her left foot; pallor was first noticed in 1888. In 1890 she had a second attack of typhoid fever, mild, with good recovery. In 1895 she was for two months in the Homœopathic Hospital with anæmia and traumatic ulceration of both inner malleoli. In 1900 she was for six months in St. Arnaud Hospital with the same; her spleen was then found to be enlarged and she had ulcers which were considered to be probably specific and which healed under rest and specific treatment; arsenic did her general state little good; the ulcers had been discharging off and on ever since on any long standing. In April, 1901, she was for four months in Ward 11 of the Melbourne Hospital; her spleen was then down to the umbilicus and there was marked hæmic bruit. The blood contained per cubic millimetre 2,800,000 to 3,130,000 red cells with no marked changes in shape; 5200 white cells; and hæmoglobin, 53 per cent. Three weeks later she was for nine months in Ward 4. Both she and her sister (Case 2) were then given mercury and large doses of iodide in view of a possible specific origin without any benefit. Iron had no effect, but arsenic in increasing doses, and hypodermic injections of sodium cacodylate in large doses were at first beneficial but without lasting effect; attacks of splenic pain with pyrexia occurred; the patient was finally discharged on May 23rd, 1902, somewhat improved by hospital feeding and *régime*, but apparently little influenced by any drug. From June, 1902, to March, 1903, she was again in St. Arnaud Hospital. On admission into Ward 12 in May, 1903, she was markedly anæmic with an anxious chlorotic expression; she had pain, dull and paroxysmal, over the spleen, the liver, and the kidneys; there was a hæmic bruit; the spleen extended down below the umbilicus and inwards to the middle line: the liver was slightly enlarged; there were attacks of vomiting for eight or nine days, with bile and blood; there was a dull, livid, chronically congested area over each internal malleolus, necrosed to the bone and discharging. She gave a history of anorexia for six years, palpitations and chlorotic tinge for four years, and dyspnœa for three years. She had had epistaxis twice, several feverish attacks with temperature up to 100° F., and diarrhœa and dysuria at times. There was no purpura. She was fairly nourished and presented no signs of hereditary syphilis. Despite stimulating diet, bone marrow, adrenalin, arsenic, hæmatogen, and ferric chloride in large doses she gradually grew worse, periods of feeling well alternating with depression and malaise. I am indebted to our pathologist, Dr. Mollison, for the following and all other blood examinations made in the Melbourne Hospital:—

Date.	Red cells.	White cells.	Hæmoglobin.	
April 7th, 1903	2,960,000	No leucocytosis	65 per cent.	Colour index, 1·14.
,, 8th, ,,	Slight micro-poikilocytosis	8000	Chiefly polynuclear	No marked microcytosis. megalocytosis.
,, 14th, ,,	3,500,000	—	75 per cent.	—
,, 23rd, ,,	3,500,900	6000	65 ,,	Colour index, 0·92.

Pallor was slight and there was slight poikilocytosis; there was no polychromatophilia; there was no marked micro- or megalo-cytosis; the white cells were chiefly polynuclear; there were a few lymphocytes, but no myelocytes or basophiles. The red corpuscles then fell to 2,780,000 and the hæmoglobin to 50 per cent. She became weaker and generally worse and went home for a month. Returning on Sept. 3rd, under bone marrow, arsenic, ferric chloride, and thymus extract her red cells rose to 3,600,000 and the hæmoglobin to 65 per cent., falling again on Oct. 15th—the red cells to 2,350,000 and the hæmoglobin to 70 per cent. On the 27th Dr. Stirling successfully removed the spleen though it was very adherent and the bowel became torn. On Nov. 2nd the blood count was: red cells 3,190,000 and hæmoglobin 60 per cent. On the 12th the red cells were 4,600,000. On the 24th she was out of bed. On the 26th the red cells were 4,480,000, with slight leucocytosis, and the hæmoglobin was 70 per cent. On Dec. 3rd the red cells were 4,120,000, the white cells were 10,000, and the hæmoglobin was 85 per cent. On the 16th the red cells were 4,670,000, the white cells were 18,000, and the hæmoglobin was 85 per cent. On the 21st she was discharged, looking and feeling fairly well. On the 29th the red cells were 4,480,000, the white cells were 20,000, and the hæmoglobin was 85 per cent. She has continued ever since free from pain and from the symptoms of severe anæmia, but the malleolar ulcers again broke down and rapidly healed under bromine and rest. On May 19th the red cells were 4,310,000, with some poikilocytosis, and the white cells were 20,000, with an occasional myelocyte and mast cell.

Date.	Red cells.	White cells.	Hæmoglobin.	Colour index.
July 14th, 1903	3,200,000	About normal	55 per cent.	0·86

For the examination of the spleen I am indebted to Dr. Constance Ellis. It weighed 43½ ounces after being in spirit, and cut with a much firmer section than an ordinary spleen. Microscopically the capsule was thickened but not in any remarkable degree. There were few nuclei in the capsule and those present were very much elongated. The spleen tissue just under the capsule was much compressed, there being hardly any blood spaces in it, while there was very much yellowish-brown pigment. The trabeculæ corresponding with the capsule were slightly increased in thickness but not markedly so; they also contained only a few elongated nuclei. Pigment was noticeably present in all parts of the section. The most marked characteristic was the great increase in the fibrillar framework of the spleen pulp, made up of the anastomosing processes of endothelial cells, with their rounded or elongated nuclei. While these cells were numerous, the lymphocytic cells of the spleen pulp were few in number, and this corresponded with another marked change—namely, the paucity of Malpighian bodies which were very few, both in absolute numbers and also in the number of cells they contained; their lymphoid tissue seemed to have been encroached upon by the endothelial framework the large clear cells of which were frequent both in the centres and through the periphery of the tufts. The Malpighian corpuscles gave the impression of having been encroached upon by the fibrosis of the surrounding pulp. The blood-vessels had thick walls, though it was in most instances the adventitia that was increased rather than the intima, though, in some cases, this also had encroached upon the lumen.

CASE 2.—The patient, who was a female, aged 19 years, came under notice on account of visiting her sister. She was admitted to the hospital on May 23rd, 1903. She was anæmic but not chlorotic, with splenic enlargement well marked, but much less than in the case of her sister. She had palpitations, which at times were violent, and vertigo, which at times prevented standing; she became tired on the least exertion. She had a hæmic bruit, splenic pain (which was often very severe and radiating to the axilla and the back), anorexia, frequent nausea, and some diarrhœa lately, but no vomiting or hæmorrhages. She had had three febrile attacks in the last two months. The urine had a specific gravity of 1009 and was neutral; it contained no albumin. She had always been slightly pale and had never been quite strong. She had suffered from congestion of the lungs at six years of age, from typhoid fever at seven years, and for a few weeks from jaundice at eight years. The catamenia commenced at 14 years of age and had been regular but scanty. She had been in service since 13 years of age, in an easy place and good surroundings; she was under no treatment until the time she was in Ward 4 with her sister. She never had any œdema, chlorotic tinge, hæmorrhage, fever, or gastro-intestinal troubles. When in Ward 4 there were some poikilocytosis and normoblasts, but there was no leucocytosis. After her discharge she went back to service for 12 months but since became worse again. Neither she nor her sister has at present any Widal reaction. She was

placed on similar treatment to her sister. The condition of the blood was as follows:—

Date.	Red cells.	White cells.	Hæmoglobin.	Colour index.
June 9th, 1903	2,960,000	Leucopenia	67·5 per cent.	1·14
„ 22nd, „	3,000,000	—	65·0 „	—
July 17th, „	2,780,000	—	50·0 „	0·9
	Slight poikilocytosis, with some microcytes.			

She was discharged on July 30th. She remained much the same and was readmitted on Dec. 24th with a view to operation. On Jan. 9th, 1904, her blood count was: red cells, 3,700,000; hæmoglobin, 95 per cent.; and white cells, fairly normal. On the 19th Dr. Stirling removed her spleen without any difficulty and she made a rapid recovery. On Feb. 3rd her blood count was: red cells, 4,120,000; white cells, 6000; and hæmoglobin, 80 per cent. On the 11th the count was: red cells, 4,800,000; white cells, 8000; and hæmoglobin, 85 per cent. Since the splenectomy she has remained free from pain. Neither she nor her sister has shown any signs of lymphatic enlargement.

For the examination of her spleen I am indebted to Dr. R. J. Bull. It was uniformly enlarged, measuring 6 inches by 4 inches by 2¼ inches and weighing 14¾ ounces. The surface was smooth; the capsule was slightly thickened; there was no perisplenitis. The cut surface presented a fairly homogeneous appearance and the substance was firmer than normal. There were no lymphoid masses present.

The most noticeable feature on microscopic examination was a marked increase in the fibrillar reticulum of the splenic pulp, with diminution of the number of lymphocytes. The Malpighian follicles were fewer in number than normal and the supplying arteries were thick-walled with the lumen frequently obliterated. The large amount of coarsely grained blood pigment indicated considerable hæmolysis. The relatively few nuclei in the fibrous trabeculæ and blood-vessel walls, together with the swollen appearance of the fibrils in the framework generally and in the vessel walls, were suggestive of degeneration of a hyaline type rather than the result purely of a chronic inflammatory condition such as syphilis. Staining methods proved the absence of lardaceous change. The pathology, no less than the clinical history and blood pictures of the two cases, is thus in accordance with that of the condition known as splenic anæmia.

CASE 3.—The patient, who was a female, aged 23 years, was also found similarly affected. She appeared to have been quite strong up to her marriage which had taken place four years previously, except for three mild attacks of "typhoid fever" in 1884, 1890, and 1896. The first occurred at Portarlington with six others, the second at South Melbourne with several others, and in the last she alone of the family was affected. In the last two attacks she was in the Homœopathic Hospital and in all of them she made a good recovery. Her catamenia were delayed, however, until she was 18 years of age but she had always been regular. At 21 years of age she was jaundiced for a week. She was married at 19 years of age and had never been quite well since. She had twins within that year, both of whom died within a few weeks. In May, 1901, Dr. Gertrude Halley treated her for an ulcerated leg which healed under treatment. On June 21st, 1902, she was confined in the Women's Hospital of a healthy child, but remained therein for five weeks owing to sepsis after adherent placenta. No note occurs as to any anæmia or splenic enlargement. The child became weakly and several months later she herself was an out-patient at the Queen Victoria Hospital in May, 1902, when Dr. Halley reported that she looked very ill and that the ulcer had broken down again. No complaint was made of splenic pain and no examination was made. The baby died at five months from pneumonia. When examined by me last June the spleen reached below the umbilicus and within one inch of the middle line; her general health was unsatisfactory; she was two months pregnant; she was dyspnœic on exertion; she had palpitations and often vertigo on sitting up; she had been chlorotic in tinge since marriage and anæmic for 12 months; she had no hæmic bruit and no history of hæmorrhages or gastro-intestinal disturbances. She was again confined of twins in the Women's Hospital in February last. Dr. J. F. Harris, to whom I am indebted for the account of the patient when in the Women's Hospital, states that the twins were healthy, weighing five pounds each. There was a large common placenta which was adherent and was removed manually, the spleen being felt from within. The placenta, though large and somewhat fibrous, could not be called typically specific. She again ran a septic course and was normal in ten days; she was intensely anæmic and her resisting power against sepsis was exceptionally feeble. So far she has not permitted treatment or examination of the blood.

CASE 4.—The next stage in this interesting series was the discovery of two cases in a nephew and niece of the foregoing and a similar condition in the father of one of them, this latter being a male, aged 30 years. He was strong and well till he had an attack of typhoid fever at Portarlington in 1884, with six others of the family. It was a severe attack, with convalescence lasting three months. The man had been pale and slightly dyspnœic ever since. He had influenza ten years later and was thought to be tuberculous. He gave no history of syncope, vertigo, hæmorrhage, pyrexial attacks, splenic pain, or gastro-intestinal troubles. He had the facies of his sisters; the spleen was notably enlarged. Dr. L. J. Balfour found his blood to contain 2,250,000 red cells and 9000 white cells per cubic millimetre; the hæmoglobin was 65 per cent. Of 66 white corpuscles counted there were 53 polynuclears, or 80 per cent.; ten lymphocytes and mononuclears, or 15 per cent.; and three eosinophiles, or 4·5 per cent. While counting these leucocytes one normoblast was seen. The blood film did not show anything very marked. The chief alterations from the normal were found in the red cells and these alterations appeared in two ways—alterations in size and unequal staining. A few microcytes were present which took the eosin stain more deeply than those of normal size. There was a much greater number, however, larger than the normal size, say varying from the normal (taken at 7·5μ) to about 10μ. The larger forms showed a greater tendency towards the basic stain. Some of the red cells appeared nucleated. The film also showed an occasional normoblast. No basophilic granulations were noticed in the red cells, as were shown clearly in those of the patient's son (Case 5). No poikilocytosis was seen. The blood picture thus, like the others, corresponded very closely with that of splenic anæmia given by Da Costa in his "Hæmatology," p. 234.

(The three sisters and the brother were shown at a meeting of a medical society. The two from whom the spleens had been removed were in marked contrast with the other two, who looked pale, chlorotic, and anxious, just as their sisters had appeared when present at the meeting 12 months before. The two spleens were also exhibited and Dr. Ellis and Dr. Bull showed sections under the microscope, illustrating their descriptions.)

CASES 5 and 6.—For the following account of the condition of the two children I am indebted to Dr. Summons of the Children's Hospital. The first patient, who was a male, seven years old, was admitted to hospital on May 14th, 1904. The child was taken to hospital because of paleness, headache, and attacks of vomiting. When examined he was fairly anæmic, had slight faucitis, vomited two or three times, and had a headache and a temperature of 103° F. The heart apex beat was in the fifth interspace in the nipple line. On auscultation a hæmic murmur was found to be present. The lungs were clear, the liver was slightly enlarged, and the spleen, two fingers' breadth below the costal margin and the notch, was easily palpable. There was no glandular enlargement anywhere. The febrile condition rapidly subsided and on the 16th the boy was well in himself. The mother stated that he not infrequently had similar attacks. The blood count, made by Dr. Balfour, gave 3,600,000 red corpuscles and 14,100 white corpuscles per cubic millimetre and hæmoglobin 40 per cent. The blood smear showed nucleated red corpuscles fairly abundant. The red corpuscles were of various sizes, from well-stained microcytes to megalocytes. The staining of the red corpuscles was interesting. Many of them took up the basic part of the Jenner stain in various degrees as a diffuse blueness or as definite numerous granules. Some of the red corpuscles were vacuolated but the majority of them were normal. The white corpuscles stained well and showed all the usual types as polymorphonuclears, eosinophiles, basic, and lymphocytes; these last were in excess. On the 28th, with no recent febrile reaction, the hæmoglobin was 57 per cent.; there were 2,655,000 red corpuscles and 11,200 white corpuscles per cubic millimetre. The blood smear was similar to the previous ones, except that the nucleated red corpuscles were less numerous. The

boy's colour improved and he was discharged on June 5th, 1904, very much better. The second patient, who was a girl aged ten years, was admitted to hospital on May 24th, 1904, not because she was ill but for observation. She at times suffered from malaise. On examination the skin and mucous membranes were seen to be anæmic-looking. The lungs were clear. The heart apex beat was in the fifth interspace inside the nipple line. There was a systolic murmur very distinct in all areas but most marked at the base. The spleen was easi y palpable, four fingers' breadth below the costal margin. The liver was not enlarged. The blood count showed 2,564,000 red cells and 11,260 white cells per cubic millimetre; the hæmoglobin was 55 per cent. The blood smear showed very little diffuse blue staining in the red corpuscles, which were markedly of different sizes, from the well-stained small microcyte to the large megalocyte. Numerous nucleated red blood corpuscles were present. The white corpuscles were of normal types and there was a definite increase in the percentage of lymphocytes. The child, while in hospital, had a severe heart failure and the mother informed us that she had a similar trouble last year. She is still in the hospital. In addition, Dr. Summons has kindly furnished me with an account of another case of splenic anæmia, making the third that has been treated in the Children's Hospital during the last 12 months. As it is apart from the foregoing series, it is subjoined to this paper as an addendum. I have to thank Dr. Balfour, Dr. Bull, Dr. Ellis, Dr. H. H. Fleming (St. Arnaud Hospital), Dr. Halley, Dr. Harris, Dr. Mollison, and Dr. Summons for their invaluable assistance in the directions already referred to.

Such is the strange series of cases which it has been my fortune to observe. It is full of matters of absorbing interest, such as the causation, the identity or otherwise of the conditions in the children and the adults, the occurrence of so many cases in one family, the possibility of its presence in others, the symptoms, course, and endings, the result of splenectomy, and the futility of other treatment. I can deal with these only very briefly.

In obscure causation, clinical history, blood picture, and pathology they are typical illustrations of splenic anæmia and their totality strongly supports the British and American view of considering that condition as a disease *sui generis*. As regards causation I remain entirely in the dark. There is no evidence of hereditary syphilis, rickets, or other known constitutional cause, nor can typhoid fever be accepted as a satisfactory explanation. The same applies to any other certain and sufficient exciting cause. As regards identity all the adult cases have the same clinical history and blood picture, though in varying degrees, and Dr. Balfour's examination of the blood from father and son ends with the statement that "the blood picture of the son is somewhat similar to that of the father, the only difference being that it shows more marked changes." In this category the future development of the infantile cases is a matter of peculiar interest. The different patients, again, have apparently been affected at different ages and one at least seems to date back only a few years. Locality and occupation, similarly, seem to have played no certain part in causation. The futility of the ordinary and even of several extraordinary methods of treating anæmia in such cases is also well evidenced. Again, there is the light that the two cases of splenectomy may and do throw upon the functions of that ill-understood organ—the spleen. Evidently it is not essential to life, to digestion, or to blood development, and some people even do better without it. All this, of course, has been already known but not so markedly exemplified locally and yet any attempt to remove the spleen in the other great blood disease attended with splenic enlargement —viz., splenic leukæmia—seems fraught with the utmost peril and is almost invariably fatal. Apparently this is not from any distinctively splenic function but from different vascular conditions. Finally, the future of the spleenless cases is a matter worthy of continued study. So far, there seems to have been no consecutive lymphatic enlargement and apart from the blood (and even there not distinctively) there has been no evidence of substitutional action on the part of the bone-marrow. The one patent fact is that the patients are both much better in every way without their spleens than they were with them, though they are still vulnerable and not in a state of rude health, and that the proper treatment for such cases is not at present so much medical as surgical.

ADDENDUM.

The following is a further case reported by Dr. Summons from the Children's Hospital.

CASE 7.—This patient, who was a male, aged 14 years, came to the hospital on August 17th, 1903, complaining of weakness, feverish attacks, anorexia, and paleness. There was a history of a continual dull pain in the left side of the abdomen for the past four months. 14 days previously to admission the boy became ill with extreme weakness and pains in the hips and knees, having then had to take to bed. Seven days later he had a profuse epistaxis but not any bleeding from anywhere else; his eyesight was also somewhat dim for a few days. There was no history of a previous attack of scarlet fever. On examination the patient had a pasty, anæmic condition of the skin and mucous membranes, with some puffiness about the face. The lips were brown and dryish, the tongue was flabby and coated, the temperature was 103° F., and the pulse-rate was 160, regular, and of a collapsing character. The patient had also a harsh croupy cough. The lungs, however, were quite clear. The heart's apex beat was in the fifth interspace just inside the nipple line. The sounds were rapid and clear. The liver was slightly enlarged and the spleen was two fingers' breadth below the costal margin and easily palpable. No glands were enlarged in any region. The urinary system was normal. The right pupil was definitely larger than the left; both reacted to light and to accommodation. On examination the fundi oculorum showed numerous old and new hæmorrhages, both large and small. There was deafness in the right ear, no air conduction being present, but bone conduction was good. The blood count was 3,200,000 red corpuscles and 9380 white corpuscles per cubic millimetre; the hæmoglobin was 40 per cent. The smear showed the red corpuscles staining unevenly and of various sizes, from the small microcytes to the large megalocytes. There was slight irregularity in their form. No nucleated red corpuscles were present. The white cells were of the normal types and showed nothing abnormal. The febrile condition rapidly subsided with rest but to the end there were frequent turns of feverishness. As time went on the retinal hæmorrhages altered in shape and transparency and the colour changed to white in the process of fibrosis; numerous small fresh hæmorrhages occurred. The cough, suggestive of enlarged bronchial glands, persisted but no physical signs developed in the chest. The boy was on some days very well and on others he suffered from gastro-intestinal trouble, with vomiting, nausea, and abdominal distress. He gradually became worse and by Sept. 28th he had severe frontal headache and became difficult to rouse. On Oct. 2nd an internal strabismus had developed in the left eye. The right pupil was much larger than the left and the outline was irregular. He did not hear what was said to him and the right side of the frontal region was tender all over. There was tenderness over the calves and great sciatic nerves. The knee-jerks were active and ankle-clonus was obtainable on both sides. The boy was semi-comatose and quickly passed into complete coma, dying during the afternoon of Oct. 5th.

The notes of the post-mortem examination, which was made on Oct. 6th, were as follows. The brain was anæmic, no lesion being present. The heart valves were clear; the left ventricle was hypertrophied. There was a patch of atheroma on the septal cusp of the mitral valve. The lungs showed organised pleuritic exudation at the left apex; no tuberculous disease was present. The heart and lungs weighed 38 ounces; the lungs weighed 20 ounces. The bronchial glands were slightly enlarged but not pressing on the bronchi. There were petechial hæmorrhages under the pleuræ and hæmorrhages under the periosteum of the frontal bone. The spleen weighed 11 ounces. The liver was very tough and weighed two and three-quarter pounds. The pancreas was pliant, tough, and large. Hæmorrhages old and small were seen in the retroperitoneal tissues. The kidneys were large; the capsule peeled easily; it was not tough; the weight of both kidneys was 10 ounces. There was much pigmentation of the omentum and mesentery, due to old small hæmorrhages. There was slight enlargement of the glands in the posterior triangles of the neck and in the axillæ.

REMARKS BY DR. STIRLING ON THE OPERATIONS.

The possible indications for extirpation of the spleen are nine in number, as follows. 1. Cases of malarial spleen. 2. Splenic anæmia or splenic pseudo-leukæmia. Sippy reports seven cases with five recoveries. Osler has reported 15

cases, one of which was operated on with a fatal result. Warren (Annals of Surgery, 1901) reports a successful case. 3. Splenic leukæmia. Splenectomy in this disease is almost invariably followed by a fatal result. Hagen reports 42 cases with four recoveries. Death is due to secondary hæmorrhage owing to the condition of the walls of the large vessels. 4. Banti's disease, or hypertrophy of the spleen with cirrhosis of the liver. Hagen gives 16 cases with three deaths. Banti describes three successful cases. 5. Wandering spleen. 6. Abscess of the spleen. 7. Rupture of the spleen. Berger tabulated 80 cases in which the spleen was removed for hæmorrhage; 35 recovered. 8. Sarcoma of the spleen. 9. Possibly hydatid of the spleen. The two cases in question come under the second heading in the list. In the first the spleen was markedly adherent, very large, and difficult to manipulate. In the second it was smaller and much less adherent. Vanverts, quoted by Bovée, found that in 39 cases of enlargement with marked adhesions 28 died, while in 35 without adhesions only two died.

CASE 1.—The operation in this case was performed on Oct. 27th, 1903. Under ether an incision ten inches long was made through the left rectus abdominis extending downwards some distance below the umbilicus. The structures were divided down to the peritoneum and on opening this the enlarged spleen came into view, the anterior border being fairly moveable but the posterior surface was fixed. The inner surface was examined and many adhesions were found around the hilum. On passing the hand between it and the diaphragm it was found markedly adherent and below firmly attached to the splenic flexure and descending colon. It was decided to attack it on the inner surface first so as to control the blood-supply. There were at least four large arteries and a large number of smaller ones requiring division but the real trouble lay in dealing with enormous veins. A clamp put on the uppermost one slipped and considerable disconcerting bleeding followed. Most of this, however, came from the distal end. Piece by piece, and working cautiously, the whole gastric surface was separated. No ligatures had been as yet applied, the bleeding being controlled by innumerable clamps. The posterior border was then divided. After dividing the lieno-renal ligament an attempt was made to free the organ from above and from the colon. In this manœuvre a considerable rent was made in the colon, admitting four fingers. At this point—one and a half hours after beginning the operation—the anæsthetist, Dr. E. H. Embley, informed me that her condition was too hazardous, from the hæmorrhage and shock, for much further manipulation. It was impossible, however, to discontinue without removing the spleen and repairing the torn bowel. Two quarts of normal saline solution being injected into a vein of the arm and a tenth of a grain of strychnine hypodermically she rallied somewhat. The few bands holding the spleen were divided and the organ was removed. After ligating the vessels securely with silk the bowel, which meantime had been securely clamped by the fingers of my assistant (Dr. Cumpston), was now thoroughly cleansed and 24 interrupted sutures of silk were passed through all its coats. A tube and gauze drain were placed in position over the injured bowel and the wound was sutured in the usual way. The weight of the tumour after removal was seven pounds. On leaving the table the patient was in a condition of profound shock and her pulse was hardly perceptible. The whole operation took two and a half hours. She improved steadily. The tube and gauze drain were removed on the fifth day, the bowel sutures holding splendidly. On Nov. 5th the sutures were removed. The blood count showed 4,600,000 red cells per cubic millimetre. On the 12th she had a rigor lasting half an hour and vomited several times. The temperature was 100·8° and the pulse-rate was 108. On the following day she complained of great pain on the right side of the abdomen, but there was no distension or rigidity or tenderness at the site of the pain. I was told now for the first time that one of the sponges used at the operation was missing; and as it was supposed to have been used on that side of the abdomen and to be the possible cause of rather alarming symptoms—pain, fever, and vomiting—I reopened the abdomen in the right semilunar line and made a search for it. Nothing was found. The symptoms improved and gradually disappeared in eight days, and shortly afterwards she was transferred to Dr. Springthorpe's care again.

CASE 2.—The operation was performed on Jan. 19th, 1904. The abdomen was opened by an incision slightly to the left of the middle line, reaching from a little below the costal margin to the level of the umbilicus. The stomach, intestines, and the left lobe of the liver were packed off with flat sponges and an attempt was made to bring the spleen into the wound. This being unsuccessful, part of the gastro-splenic omentum was ligated and divided. The viscus was then turned over and the lieno-renal ligament severed. Copious hæmorrhage here suddenly ensued from rupture of several large veins. These were picked up with long pressure-forceps and secured. The spleen was then brought out of the abdomen and the remainder of the gastro-splenic omentum was divided and ligatured. No adhesions were found. On Jan. 28th the sutures were removed. On Feb. 1st the blood count showed 4,120,000 erythrocytes and 10,000 leucocytes per cubic millimetre and the hæmoglobin was 80 per cent. On the 11th the erythrocytes were 4,820,000 and the leucocytes were 8000; the hæmoglobin was 85 per cent.

Although I am well aware that the median incision has the stamp of authority in any complicated case—such as the first—an incision to the left of the median line allows, perhaps, of better handling the adhesions of a large tumour. It is well, too, I think, to begin below and work upwards, having, of course, packed off the intestines well to the right. I would not, if such a case came my way again, depart from the plan of using forcipressure to control the bleeding, as, when the spleen has been removed, it is quite easy to ligate the vessels with much greater security than when working in the cramped area occupied by a large and adherent tumour. The veins, in spite of every care, are easily torn in the manipulations and the clamps used must be such as are not likely easily to slip. Some recommend in this and similar operations to leave a large quantity of saline solution in the abdominal cavity when the abdomen is closed, so as to minimise shock; but I have long since discarded it except in cases of ectopic gestation and, of course, with the soiling of the wound area by the contents of the colon, such a procedure would only have distributed the colon bacilli—if any were left after thorough sponging.

A CASE OF PNEUMOCOCCIC PYÆMIA WITH RECOVERY.

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"PNEUMONIA is not a local but a universal disease; and the brunt of it may fall upon any part."[1] Of the truth of this aphorism all are now convinced. The presence of pneumococci in the blood may be regarded as simply an integral part of the infective process.[2] Since it is admitted that pneumonia is usually a septicæmia it is not surprising that it occasionally leads to a pyæmic state. The following case of pneumococcic infection resulting in broncho-pneumonia, empyema, arthritis, and peritonitis, and ending in recovery appears worthy of record in view of our recently extended knowledge on these points.

A little girl, aged eight years, was admitted to the Metropolitan Hospital on Dec. 6th, 1903, with the history of having been taken ill two days before admission. She was anæmic and looked ill and in pain. The respirations were very rapid (60), the pulse was quick (128), and the temperature rose to 102·4° F. soon after admission. The left lung was dull to percussion in front and impaired behind; in front bronchial breathing and bronchophony and a few crepitations were heard. On the right side the note was dull at the base; bronchial breathing and crepitations were heard in patches. The heart was apparently normal. The abdomen was held rigidly and palpation over the right lumbar region was painful. The right knee-joint was swollen and tender. On the 8th the signs of consolidation on the right side extended all over the front. On the left side the signs were clearing up. The right knee appeared rather more inflamed. By the 11th the

[1] Gee: Medical Lectures and Aphorisms, p. 251.
[2] Journal of Infectious Diseases, 1904, vol. i., p. 260.

areas of consolidation were all undergoing resolution but the dulness at the right base persisted. The knee, which had been placed upon a back splint, was less painful. On the 17th the patient did not appear so well. At the right apex the note was impaired still and crepitations were heard. At the base the dulness was very marked and the breath sounds were quite faint. The heart's apex was displaced outside the left nipple line. An exploring needle was introduced into the sixth right interspace in the posterior axillary line and pus was withdrawn. This pus was found to contain encapsulated diplococci staining with methylene blue and by Gram's method. The abdomen was distended and tender and moved badly; dilated veins appeared on the surface and there were signs of free fluid. The knee was swollen and painful. A blood count showed red corpuscles 4,000,000 and leucocytes 21,000 per cubic millimetre. Resection of a portion of the seventh rib was performed on the right side and about 20 ounces of pus were let out. A drainage-tube was inserted. The breathing was much relieved by the operation and the signs in the chest rapidly improved. On the 22nd, as the knee remained swollen and painful, Mr. W. D. Harmer explored it; he found about four ounces of pus in the knee-joint and tracking up under the quadriceps extensor. This was washed out with perchloride of mercury (1 in 5000) and drainage-tubes were inserted on either side of the patella. This pus contained diplococci of similar character to those found in the pus from the chest. On the 27th the right hip-joint was swollen, tender, and rather red. On the 29th Mr. Harmer put an exploring needle into this with a negative result. On Jan. 9th, 1904, the abdomen, which had been getting better since Dec. 17th, became more swollen again; on the 10th signs of free fluid reappeared. On the 14th the pulse became rather feeble and very rapid—140—and the child was sick twice. On the 16th a few petechiæ appeared on the abdomen. On the 19th the abdomen had become very distended: a Southey's tube gave exit to eight ounces of pus. Mr. Harmer therefore performed laparotomy and about three pints of pus were let out. Keith's tube and dressing were applied. Microscopically the pus showed no organisms. On cultivation a few colonies of streptococci grew probably from contamination. From this time on the child steadily improved. Previously very emaciated she began to put on flesh and lost her distressed expression. The only events in a rather prolonged convalescence were the occurrence of a slight vaginal discharge from Feb. 6th to 16th and a return of œdema round the knee-joint, apparently the result of deficient drainage. On April 5th, when she went to the convalescent home, the following was her condition. The lungs were clear, the abdominal wound was closed, and the abdomen appeared natural. The knee was still rather flexed (it had been treated by extension) but the sinus was closed and there was no swelling of the joint. The child was seen again in July. She appeared in excellent health and showed no ill-effects from her disease except the flexed and ankylosed knee, for which resection will probably have to be performed.

In this case no attempt was made to cultivate the pneumococcus from the blood, the presence of that organism in the pus from the knee-joint being sufficient evidence of dissemination. The principal cause of failure when this is attempted appears to be the employment of too small a quantity of blood. Cole,[3] in examining 30 cases of pneumonia from Osler's clinic, added from eight to ten cubic centimetres of blood to 150 cubic centimetres of sterile litmus milk, using this large quantity of the medium to avoid the bactericidal effect of the blood. He found the pneumococcus in nine cases. Prochaska[4] succeeded in doing this in 38 out of 40 consecutive cases of pneumonia.

Probably not pneumonia only but all pneumococcal infections tend to be septicæmic. Thus, at St. Bartholomew's Hospital during the last ten years 17 cases of meningitis without discoverable lesion elsewhere were proved to be pneumococcal. In three instances cultures of the spleen yielded a pure growth of pneumococci.

The patient in the present case was eight years old. Now the liability to secondary pneumococcal infections seems to be greatest in early life. Kanthack[5] found that in 170 fatal cases of pneumonia no less than 64 per cent. of those under 21 years of age died from secondary infection, whereas in his whole series only 35·7 per cent. died in this way. In the series we have collected (see Table I.) the average age at which death occurred from general pneumococcal infection was 15½ years. Yet the prognosis of pneumonia becomes increasingly grave with advancing years, suggesting that while the local lesion is sufficient to cause death in older persons the more resistant young can tolerate an extensive invasion before succumbing. This tolerance may be found in very early years. Thus Parker[6] records a case of broncho-pneumonia in a child aged only 17 months which lasted about three months before proving fatal from general infection. The vigour with which the body reacted to invasion was shown by a leucocytosis of 73,000. In the present case there can be little doubt that the infection occurred through the lung—the commonest route. Infection has also been shown to occur through the middle ear,[7] the nasal cavities and tonsils,[8] the appendix,[9] the stomach and other mucous membranes,[10] including the endometrium.[11] The constitutional symptoms differ widely in different cases. Parker's case was apyretic throughout, Nuthall and Billington[12] call attention to the typhoid state and markedly remittent character in their cases, while in others the patient appears overwhelmed at the outset by the virulence of the infection. Two good examples of this type have been recently recorded by Newton Pitt[13] and by Shaw and French.[14] The present example was remittent in type but showed nothing of the typhoid state, the child being quite conscious throughout and keenly alive to all that was going on.

It may be as well briefly to discuss in turn the signs of metastasis presented by this case.

Empyema.—The pneumococcus is so well recognised as a cause of empyema that little need be added. At St. George's Hospital during 1901 it was found in 11 out of 13 cases of empyema; nine of these had had pneumonia.[15] In the cases here collected empyema was apparently the starting-point of a general pneumococcal infection in eight cases (20 per cent.) and occurred as a complication of such an infection in seven cases (17·5 per cent.).

Peritonitis.—This is regarded as a comparatively rare complication. Out of 162 cases of pneumococcal infection reported by Netter the peritoneum was involved in only two, and in five years 182 fatal cases of lobar pneumonia at Guy's Hospital showed infection of the peritoneum in only five (Fawcett). But the peritoneum may be the primary point of infection (Bryant). We have been able to find ten fatal cases recorded at St. Bartholomew's Hospital in which the peritoneum was involved; in two instances no other lesion could be discovered, in one it was accompanied by acute nephritis, in five cases it followed empyema, in one pyo-salpinx, and in one only, broncho-pneumonia. To these may be added Duckworth and Marsh's case[16] of appendicitis, followed by pneumococcal peritonitis and empyema, that recovered. The multiplicity of the serous membrane infected is decidedly interesting. Thus the peritoneum, pericardium, and pleura were all involved in three cases, the peritoneum and pleura in three, and the peritoneum and pericardium in two. As a direct sequel to pneumonia or broncho-pneumonia, on the other hand, we may regard peritonitis as decidedly rare. In the discussion at the Clinical Society on Jan. 8th, 1904, the view was expressed that the infection might be secondary to the lung through the blood stream, or to the alimentary canal, especially through the appendix. Quite lately Shaw and French[17] have recorded an instance of this last variety which was fatal in 48 hours. Most of the cases, however, show a somewhat chronic course, a tendency to relapse, and a tedious convalescence. The present case exemplifies all these points. That the peritoneal pus was sterile need not surprise us considering how easily the pneumococcus dies out in culture media and how long the laparotomy was performed after the original infection.

Arthritis.—At the time of publication of Leroux's paper in 1899 and Cave's[18] in 1901 this was considered a rare

[3] Cole: Johns Hopkins Hospital Bulletin, June, 1902.
[4] Quoted by Parker: Brit. Med. Jour., 1903, vol. i., p. 1681.
[5] Kanthack and Lance: St. Bartholomew's Hospital Reports, 1896.
[6] Loc. cit.
[7] Spitta: Brit. Med. Jour., vol. ii., 1902, p. 1579.
[8] Pfisterer: Jahresbericht für Kinderheilkunde, Band v., Heft 4, S. 417.
[9] Duckworth and Marsh: Clinical Society of London, THE LANCET, Jan. 16th, 1904, p. 159. Shaw and French: Brit. Med. Jour., vol. ii., 1904, p. 18.
[10] Foulerton: THE LANCET, April 12th, 1902, p. 1027.
[11] Cohn: Münchener Medicinische Wochenschrift, 1899, p. 1558.
[12] Nuthall and Billington: Birmingham Medical Review, January, 1903.
[13] Newton Pitt: Brit. Med. Jour., 1904, vol. i., p. 665.
[14] Loc. cit.
[15] Spitta: Brit. Med. Jour, 1902, vol. ii., p. 1579.
[16] Loc. cit. [17] Loc. cit.
Cave: THE LANCET, Jan. 12th, 1901, p. 82.

TABLE I.—CASES OF MULTIPLE PNEUMOCOCCAL INFECTION.

No.	Age.	Sex.	Lesion.	Complication.	Evidence of pneumococcal infection.
1	45 years.	M.	Right lobar pneumonia.	Infective aneurysm of the aortic valve; meningitis.	Pneumococci in clot and valves.
2	15 ,,	F.	Infective endocarditis.	Embolism of the right middle cerebral artery; infarction of the spleen and kidneys.	Diplococcus pneumoniæ abundant in vegetations.
3	18 ,,	F.	Multiple abscesses of liver (no focus found).	Pleurisy.	Pneumococci cultivated from pus.
4	31 ,,	M.	Pneumonia (right).	Mitral stenosis with recent endocarditis.	Pneumococci in vegetations.
5	38 ,,	M.	Otitis media (suppurative).	Infective endocarditis on malformed (two-cusped) aortic valve; infarction of the left kidney and left lung; pneumonia, left lower lobe; submeningeal and subperitoneal hæmorrhages.	Pneumococci in cardiac vegetations.
6	26 ,,	M.	Double pneumonia.	Pericarditis.	Pneumococci in the heart's blood, lung, and pericardial fluid. Confirmed by inoculation experiment on mouse.
7	1 year.	F.	Diphtheria and broncho-pneumonia.	Abscess of the lung.	Pus from cavity showed pneumococci but no diphtheria bacilli.
8	14 years.	M.	Double empyema.	Small peritoneal abscess; superficial abscesses of the legs.	Diplococci found in films; cultures sterile.
9	13 ,,	M.	Pneumonia.	Empyema; meningitis; pericarditis.	Lungs: pneumococci by culture and inoculation. Spleen: pneumococci by culture. Meningeal exudate showed pneumococci by films, culture, and inoculation.
10	16 ,,	F.	Otitis media.	Mastoid suppuration; thrombosis of the lateral sinus; secondary abscesses in the lungs.	Stained films from meningeal exudate yielded almost pure pneumococci.
11	3 ,,	F.	Broncho-pneumonia.	Empyema (left); pericarditis; otitis media.	Pneumococci found in heart's blood, spleen, and mediastinal glands.
12	7 months.	F.	Broncho-pneumonia.	Meningitis.	Cultures from brain yielded pneumococci.
13	54 years.	M.	Pneumonia.	Meningitis.	Meningeal exudate contained diplococci pneumoniæ.
14	60 ,,	F.	Pneumonia.	Pleurisy; semi-purulent pericardial effusion.	Pericardial fluid showed numerous pneumococci, but cultures sterile.
15	2 ,, 6 months.	M.	Empyema.	Meningitis.	Pus from meninges showed very abundant pneumococci.
16	1 year 6 months.	M.	Broncho-pneumonia.	Empyema (left); dry pleurisy (right).	Cultures of heart's blood, pericardial and peritoneal fluid, and of pus from empyema all yielded pneumococci.
17	4 months.	M.	,,	Double empyema; pericarditis; peritonitis; meningitis.	Pneumococci in pus from meninges; cultures sterile.
18	1 year 9 months.	M.	Purulent peritonitis.	Acute nephritis.	Pneumococci from heart's blood and peritoneum.
19	30 years.	F.	Pyosalpinx.	Peritonitis; pleurisy; purulent pericarditis.	Pericardial fluid showed diplococci. Cultures; no growth.
20	47 ,,	M.	Pneumonia.	—	Subarachnoid fluid teeming with pneumococci; films and cultures.
21	1 year 5 months.	M.	Broncho-pneumonia.	Thrombosis of longitudinal and left lateral sinus; subarachnoid hæmorrhages.	Fluid from meninges yielded abundant pneumococci in films, cultures, and subcultures.
22	35 years.	M.	Pneumonia.	Abscess of lung; meningitis.	Cultures from brain yielded pneumococci; cultures from spleen were sterile.
23	53 ,,	F.	Infective endocarditis of tricuspid valve.	Infarcts in lung.	Blood cultures yielded pneumococci.
24	8 ,,	M.	Otitis media.	Thrombosis of lateral sinus; necrosis of temporal bone; extra-dural abscess; cerebral abscess.	Pneumococci cultivated from cerebral abscess.
25	8 ,,	M.	Empyema.	Purulent peritonitis; otitis media.	Films of peritoneal fluid; abundant pneumococci. Cultures; no growth.
26	4 months.	M.	,,	Meningitis.	Cultures of meningeal fluid and spleen yielded pneumococci.
27	6 ,,	M.	Broncho-pneumonia.	Purulent meningitis.	Pneumococci from cultures of meningeal fluid.
28	2 years 9 months.	F.	Empyema.	Purulent pericarditis; purulent peritonitis.	Pneumococci found in pericardial fluid.
29	25 years.	M.	Pneumonia.	Pericarditis.	Pneumococci in pericardial fluid and heart's blood.
30	8 months.	F.	Purulent meningitis.	Hæmorrhagic pleurisy; purulent pericarditis; commencing broncho-pneumonia.	Heart's blood contained pneumococci.
31	9 ,,	F.	Broncho-pneumonia.	Empyema.	Heart's blood contained pneumococci.
32	2 years.	F.	Double empyema.	Purulent pericarditis; purulent meningitis.	Heart's blood, pericardial fluid, and fluid from the third ventricle of the brain all yielded pneumococci on cultivation.
33	4 ,,	F.	Empyema.	Purulent peritonitis.	Pneumococci in peritoneal pus.
34	26 ,,	M.	Infective endocarditis of malformed aortic valve and of mitral and tricuspid valves.	Infarction of spleen and kidneys; embolism of right popliteal artery; pleurisy.	Pneumococci cultivated from blood during life. Films from vegetations and clot showed pneumococci. Cultures of the vegetations, heart's blood, and spleen grew pneumococci. Confirmed by inoculation of mouse. (Horder and Garrod: THE LANCET, June 4th, 1904, p. 1561.)
35	13 ,,	F.	Otitis media.	Infective endocarditis (mitral); rupture of chordæ tendineæ; infarcts in the spleen and kidneys; suppurative arthritis of the right shoulder- and wrist-joint.	Pneumococci cultivated from vegetations.
36	—	M.	Pneumonia.	Pericarditis.	Gram staining diplococcus resembling pneumococci in films from pericardial fluid; cultures sterile.
37	40 ,,	M.	Lobar pneumonia.	Infective endocarditis (aortic and mitral); pleural effusion; pericardial effusion; aneurysm of the superior mesenteric artery.	Cultivations from heart's blood, pericardial effusion, and spleen all yielded pneumococci.
38	1 year 6 months.	F.	Broncho-pneumonia.	Purulent pericarditis.	Pericardial fluid contained pneumococci.
39	7 years.	F.	Empyema.	Purulent peritonitis and pericarditis; pus in the Fallopian tubes and uterus.	Spleen cultivations gave pure growth of pneumococci.

pneumococcal lesion. Now that attention has been called to it it will probably be found to occur more frequently than was formerly thought. Thus RAW [19] has met with seven cases following pneumonia—i.e., in about 1 per cent. Dudgeon and Branson [20] have carefully described five cases seen in a short space of time at the East London Hospital, Shadwell. Yet we have only been able to find three cases of arthritis at St. Bartholomew's Hospital during the last ten years proved to be due to the pneumococcus alone. In two cases the knee was attacked, in the third the shoulder and wrist. It usually appears during the height of the primary disease.[21] Despite the grave prognosis the constitutional symptoms are not usually so severe as in streptococcal infections.[22] Generally, it is the synovial membrane that is attacked, though sometimes the suppuration spreads to the peri-articular tissues, as in the present case. The fluid may be thin or creamy pus or almost clear fluid inclosed in a gelatinous membrane. Dudgeon and Branson[23] attach prognostic importance to this, thin pus being an unfavourable sign, whereas encapsulation of the fluid is a good omen. Œdema or brawny induration in the neighbourhood of the affected joint is frequently absent. If the bone is attacked it is generally the outer part near the epiphyseal line that suffers. Pneumococcal osteomyelitis has not as yet been described. The knee is the joint most commonly attacked. Though usually confined to one or two joints the arthritis and osteitis may become wide-spread. Thus in a case recorded by Murray [24] the knee, thigh, ankle, and leg were all attacked.

Vulvitis.—This only appeared after the opening of the abdomen; it must have often happened that the profuse discharge ran down on to the vulva. It yielded to simple antiseptic lotions, so in all probability this was simply an accidental contamination and sprang from no deep-seated cause. But, as has been already pointed out, pneumococcic endometritis may occur and, indeed, all the mucous surfaces have been attacked by this organism.[25] In the series of cases here recorded the endometrium was involved once and the Fallopian tubes twice.

In conclusion we have tabulated the 39 fatal cases occurring at St. Bartholomew's Hospital between January, 1894, and August, 1904, of multiple lesions bacteriologically proved to be due to the pneumococcus alone (Table I.). As there is some difference of opinion as to what is sufficient evidence on this point, the pathological report is appended in each case. In calculating the percentages we have added to this table (see Table II.) the case [26] that recovered. Even when all the clinical and post-mortem evidence has been taken into account, it is sometimes difficult to decide which was the primary lesion, and the table only indicates what was the probable course of events.

TABLE II.

	Number of cases.	Percentage.
Primary Discoverable Lesion.		
Lobar pneumonia	11	27·5
Broncho-pneumonia	9	22·5
Empyema	8	20·0
Otitis media	4	10·0
Infective endocarditis	3	7·5
Appendicitis, hepatic abscess, meningitis, peritonitis, and pyosalpinx	1 each	2·5
Signs of Metastasis.		
Pericarditis	14	35·0
Meningitis	11	27·5
Peritonitis	8	20·0
Empyema	7	17·5
Pleurisy (dry or hæmorrhagic)	6	15·0
Infective endocarditis	4	10·0
Abscess of lung	3	7·5
Thrombosis of lateral sinus	3	7·5
Otitis media	2	5·0
Aneurysm of superior mesenteric artery, arthritis, commencing broncho-pneumonia, endometritis and pyosalpinx, cerebral abscess, acute nephritis, pneumonia, subdural abscess, and superficial abscesses.	1 each	2·5

[19] Raw: Brit. Med. Jour., 1901, vol. ii., p. 1803.
[20] Dudgeon and Branson: THE LANCET, August 1st, 1903, p. 316.
[21] Pösterer: Jahresbericht für Kinderheilkunde, Band v., Heft 4, S. 417.
[22] Dudgeon and Branson: THE LANCET, August 1st, 1903, p. 316.
[23] Ibid.
[24] Murray: THE LANCET, June 7th, 1902, p. 1604.
[25] Foulerton: THE LANCET, April 12th, 1902, p. 1027. Cary and Lyons: American Journal of the Medical Sciences, vol. cxxii., 1901, p. 288.
[26] Duckworth and Marsh: THE LANCET, Jan. 16th, 1904, p. 159.

NOTES ON A CASE OF QUADRUPLETS.

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CASES of four children at one birth occur with such extreme rarity as to justify the publication of this note. According to Fothergill the ratio is 1 in 387,000.

The patient, aged 36 years, was admitted to the lying-in ward on Sept. 15th, 1904, at 8 P.M. She stated that at 3 o'clock the same afternoon while lifting a heavy saucepan off the fire she felt something "snap" inside her. Soon after a considerable quantity of fluid came from her which she attributed to a temporary loss of control over the bladder. Pains which she described as "slight and lingering" began a few hours after and she left her work and went to the St. Pancras Infirmary.

On admission she gave a history of five and a half months' pregnancy and of having quickened about a month previously. She had noticed herself unusually large but had no pressure symptoms other than a great feeling of heaviness and difficulty in stooping. On examination the abdomen was greatly distended, the upper limit of the uterus being three fingers' breadth below the ensiform cartilage; the fœtal parts were not satisfactorily felt. There was a loud uterine souffle on the right side but no fœtal heart sound could be detected. The os was dilated, the membranes having ruptured, and a fœtal head, soft, as if unossified, was felt towards the right side. The cord, which was prolapsed and pulsating, was easily returned. Pains had now subsided, but as the woman appeared extremely comfortable interference was deemed unnecessary. The patient had a good night and slept well. About 3 A.M. a few slight niggling pains were felt. She was seen again at 9.30 A.M. when the child was found to be presenting transversely in the dorso-anterior position; the hand prolapsed outside the vagina could not be returned. Forceps were applied to the breech and delivery was rapid and easy. The child, a female, measured 13 inches long, weighed 1 pound 4 ounces, and survived 13 hours. Shortly afterwards uterine contractions returned and within the next 20 minutes three other children, two males and one female, were expelled. These were all stillborn and of them the first was a breech presentation, the next a transverse with arm prolapsed, as in the first case of all, and the last a vertex. In length they measured 12¼, 13, and 11½ inches respectively and their weights were 1 pound 10 ounces and 1 pound 4 ounces each of the remaining two. After another 20 minutes the placentæ were delivered, the last one manually. Two were quite separate. The remaining two had coalescing margins with separate chorions to each. There were no complications and the patient made a rapid recovery.

As regards her former history the patient had had five previous pregnancies, none of which were multiple; there had been severe hæmorrhage in two of these. On the mother's side is a complete absence of any constitutional or hereditary tendency; the paternal influence is difficult to obtain.

Remarks.—Cases of multiple pregnancy are notoriously liable to post-partum hæmorrhage, mainly for two reasons—an over-distended uterus favouring inertia and the presence of a large placental site. In this case post-partum hæmorrhage was conspicuous by its absence. This is all the more surprising when one considers the unusually prolonged second stage, coupled with the fact that in previous pregnancies she suffered severely from this complication. The very prolonged delay in the second stage of labour in this instance can readily enough be explained by the over-distension of the uterus, a condition brought about by the two factors present—viz., the plural pregnancy and the considerable amount of hydramnios.

Anomalies of presentation and also premature labour are the rule rather than the exception in multiple pregnancies. The case in point well illustrates both these, for of the presentations two were transverse and one was a breech. As regards the duration of pregnancy, judging by the appearances presented by the infants, it was probably six and a half months, although the mother denied a longer period than five and a half months.

A further point worth noting is the uniovular development of each child, as indicated by the presence of separate

chorions. This is the most common mode of development in the case of twin pregnancies (Galabin), but is unusual in multiple pregnancies involving more than two children.

I am indebted to Dr. W. M. Dunlop, the medical superintendent of the infirmary, for his kind permission to publish this case.

St. Pancras Infirmary.

SOME CASES FROM PROFESSOR GAUCHER'S CLINIC AT THE HÔPITAL ST. LOUIS, PARIS

BY J. L. BUNCH, M.D., D.SC. LOND.

THE cases from which the following notes were made were seen by me during the first six months of this year and my thanks are due to Professor Gaucher for permission to publish the notes.

Diagnosis and treatment of lupus erythematosus of the scalp.—The patient, a young girl, had on her scalp some plaques of cicatricial appearance, in one of which were found all the signs of lupus erythematosus, although the largest had lost its characteristic appearance by reason of the treatment which it had undergone and which had caused it to be covered with impetiginous crusts. Diagnosis was necessary between lupus erythematosus and the other diseases which cause cicatricial alopecia of the scalp—traumatic alopecia, favus, and folliculitis decalvans. In favus the cicatrices are deeper and more irregular; at first they are not red, then they take on a whitish tint, and as a rule the cicatrices are large. Folliculitis decalvans causes small round cicatrices surrounded by a bald patch, the cicatrices being more numerous but smaller than those consecutive to favus. In the case of lupus erythematosus the lesions may be multiple and although larger than those of folliculitis decalvans they do not attain to the dimensions of those of favus. Their centre presents a cicatricial depression and their periphery shows a red scaly border, which is infiltrated and is characteristic of the extending zone of lupus erythematosus. One of the patches on this patient's scalp presented all these characteristics.

The treatment of lupus erythematosus of the scalp does not differ from that of the affection in other localities. Professor Gaucher orders the diseased surface to be bandaged with a mixture of equal parts of tincture of iodine and crystallised acetic acid, which causes a certain amount of inflammation of the diseased area. High-frequency currents are also applicable to the treatment of lupus erythematosus of the scalp. They are, as a rule, well supported by the patient and do not cause painful or unpleasant sensations, even on the face. One patient in this clinic has, however, been unable to stand high-frequency currents applied to the face; she complained of the pain and in consequence the treatment had to be abandoned. But such a case is the exception. In every case it must not be omitted to warn the patient that the disease is one which tends to recur and that future treatment will probably be necessary.

Pityriasis rosea of Gibert abnormally pigmented.—It is unusual for pityriasis rosea to leave a very pronounced pigmentation after its elements have disappeared. Such an anomaly of the pityriasic eruption may cause confusion and lead to the suspicion of the existence of a syphilide which is fading. In the present case each of the elements of the pityriasis had been followed by a dark brown mark and an exact diagnosis could only be made after a very careful examination. The absence of any antecedent, of any trace of genital ulceration, or of mucous lesions led, however, to the elimination of the hypothesis of syphilis. On the anterior surface of the right thigh we succeeded in discovering a unique medallion characteristic of pityriasis rosea, which made the diagnosis certain. On the genital organs the affection had caused the development of a slight amount of eczematisation.

Cicatricial acne pilaris of difficult diagnosis.—In a girl, aged 23 years, patches of cicatricial lesions were present on the forehead and on the outer surface of the nose and on the chin; they were prominent and presented a slightly keloid appearance. The patient stated that they had succeeded some small nodules covered with thin scabs which made their appearance a few months previously and were treated with the galvano-cautery. What was actually seen now was the result of this operative treatment and the diagnosis was therefore by no means easy, for the lesions no longer showed any trace of morbid activity.

If one inquires what are the lesions of the face usually treated by galvano-cauterisation one thinks naturally of lupus, but the rapid evolution of the lesions is not in favour of this diagnosis. On the other hand, acne is often treated by this method also and in the case before us the lesions were of this nature. In fact, at the edge of the scalp there were some pustular lesions which were those of cicatricial acne pilaris, the "acne necrotica or varioliformis," of German authors. On the scalp similar lesions were also present.

Professor Gaucher does not approve of the treatment of acne by the galvano-cautery. He has seen it from time to time, as in the present case, cause hypertrophied, almost keloid, scars. The pus contained in the acne elements should rather be evacuated by a short scarificator which is quite as effectual as the galvano-cautery and does not cause ugly scars. Moreover, the medicaments subsequently prescribed for the skin should contain no irritating substances.

A case of melanodermia papillomatosa or acanthosis nigricans.—The patient, a man, aged 51 years, was of Greek nationality. As regards his past history, in the year 1873 he lived in Italy and contracted typhoid fever. Three months afterwards he had cholera. In 1884 he had hæmoptysis and in 1889 pulmonary congestion. Since that time he had had a cough and from time to time spat blood. Examination of the skin showed (1) pigmentation of various regions; (2) papillomata; and (3) nævi and senile mollusca. The pigmentation on the neck was very marked, distinctly brown in colour, varying from a deep dark tint to a fainter coffee colour near the edges. Over the area of pigmentation the folds of the skin were more marked and the intervening sulci were deeper than normal. The mammæ were prominent and pigmented. The skin of the axillæ was darkish-brown and thickened. The dorsal surfaces of the hands were deeply pigmented, the pigmentation extending to a lesser degree on to the posterior surface of the forearm on both sides. The skin of the genito-anal region showed rugosities, was dark brown, and in places almost black. Papillomata were present on the dorsa of the hands and at the anterior borders of the axillæ. Nævi were found scattered over the pigmented areas, brown, black, or café au lait in colour. Palpation of the abdomen showed a definite tumour in the left hypochondriac region, slightly tender on deep pressure, involving probably the posterior surface of the stomach. It was considered to be cancerous. The subclavicular and inguinal glands were enlarged. The lungs showed definite signs of tuberculosis. Not more than 20 cases of this disease are known and the prognosis is bad.

Papular cutaneous tuberculosis.—A young man, aged 20 years, presented some scabbed papular lesions on the knees and posterior surface of the forearms. The lesions were those of a papular tuberculosis of the skin, non-bacillary cutaneous tuberculosis, which some authors describe under the name of tuberculides. The dermatosis was one which by reason of its origin and nature might up to a certain point be considered as allied to lupus erythematosus. In this case the diagnosis was easy, for the patient was suffering from tuberculous glands of the neck, and hence the nature of the cutaneous affection could be deduced. The lungs, however, showed no signs of tuberculosis. The diagnosis would be infinitely more difficult if no glandular, visceral, or bone lesions of tuberculosis were present. The lesions therefore present some resemblance to lichen but they are dissimilar in that the centres of the papules show a cicatricial depression which is not seen in lichen. Moreover, each is covered with a scab and when this falls off an indelible scar remains.

Chronic prurigo of late development.—The lesions of chronic prurigo were here seen in the usual distribution in a girl, aged 17 years. But although the distribution was not abnormal the case is peculiar in that the first manifestations of the disease showed themselves only a year ago when the girl was 16 years old. As a rule, prurigo commences very much earlier in life and is usually a disease of infancy. Cases such as this when the first signs show themselves after adolescence are distinctly rare but they do occur. Treatment consists in the use of cod-liver oil internally and externally and the patient will be treated with inunctions of cod-liver oil and she will have to take several spoonfuls a day. In cases where there is much lichenification and

thickened patches are present on the skin cod-liver oil is not sufficient alone and oil of cade must be prescribed. In spite, however, of treatment, be it what it may, the disease is one which tends to recur and the prognosis is not always very favourable.

Ulcerating tuberculous lupus of doubtful nature.—The patient was a woman, aged 60 years, and the lesion made its appearance at the end of the nose a year ago. A nodule of apparently tuberculous nature made its appearance and broke down, leaving an irregular ulcer which did not present specific characters. Nevertheless, she was treated with injections of benzoate of mercury and went away in July apparently cured. In November, in spite of continual treatment the lesions reappeared and now the ulceration, indurated, of the size of a florin at the end of the nose covered with a crust and surrounded by an inflammatory zone, presented exactly the appearance of lupus. She will, however, be again given a three weeks' course of benzoate of mercury injections and it is possible that the lesions may again disappear under this treatment. But so far, in spite of the previous curative effect of mercury, the appearance of the lesions makes it strongly probable that they are lupus.

Favus in a nurse at the hospital of the Enfants Assistes.—The case differs from one shown recently where the scalp was covered with scabs and impetiginous crusts of indefinite origin, where no scutella were present, and when the diagnosis could only be made microscopically, in that the lesions are here well marked and definite. But the case is peculiar in that the patient said that she had only had the disease one year and one would have thought that a nurse at this hospital would have had some experience of the affection. The scars, however, showed that the disease must have commenced very much longer ago, probably in her infancy. The scalp is now practically denuded of hair on the left side and there is a large fungating lesion in the left parietal region. It is excessively rare to observe a case of favus in a person born in Paris who has never left the city. Nearly all the cases which one has the opportunity of studying in Paris come either from the provinces or from abroad.

Two cases of skin disease, apparently eczema.—The first was that of a man, aged about 45 years, who was cured at this hospital last year by oil of cade ointment of eczematous lesions of the trunk. Now he had come back with what turned out to be *érythème prémycosique*. On the legs, thighs, and to a lesser degree on the trunk were scattered and also closely approximated lesions which were indurated but not vesicular or discharging. The pruritus was intense and the glands of the groin were enlarged which is unusual in eczema unless it becomes infected. Both the thighs were symmetrically involved as high as an inch above Poupart's ligament where there was a definite limiting line. The prognosis is, of course, very bad and unless treatment with high-frequency currents is more successful in his case than in some others there is every reason to think that the case will shortly resolve itself into one of definite mycosis fungoides.

The second case was that of a man with eczematous lesions of much the same distribution, but in spite of the itching, the inflammation, induration, and general resemblance to the last case there can be no doubt that we were here dealing with a pure case of eczema.

Effet précoce of syphilis.—The patient, a man, aged 49 years, was treated less than a year ago for chancre. Mercury was given him in the form of pills. Now he had for some weeks had symptoms of myelitis and paraplegia, with greatly increased knee-jerks, tremor, and ankle clonus. He will be put upon benzoate of mercury injections and the mercury will be pushed. But it is necessary to remember that if the dose exceeds three and a half centigrammes a day stomatitis is always produced unless sulphur water is administered at the same time. Such an administration of sulphur water, procured preferably from a natural spring, has a wonderful effect in counteracting the poisonous effects of mercury and permitting the administration of much larger doses of mercury than could otherwise be given with safety. The exact method in which the sulphur acts is not certain. Whether it combines directly or indirectly with the mercury in the organism or leads to the formation of a harmless albuminate of mercury, the result seems to be that a considerable portion of the mercury after performing its curative work is excreted in a non-toxic form and the organism is able to stand the ingestion of much larger doses of mercury than would otherwise be possible without the appearance of toxic symptoms.

Possible confusion between boils and syphilitic gummata.—The patient, a woman, aged 50 years, had multiple boils on the upper part of her back and it is interesting to note that these boils were at first taken to be gummata having regard to the pseudo-syphilitic aspect of the lesions of circinate seborrhoic eczema which the patient had at the same time on her neck. But basing his opinion upon the rapid march and on certain characters of their symptomatology Professor Gaucher rejected this diagnosis and only prescribed a local treatment which led to their cure. The patient, it may be mentioned, presented no sign of syphilis. For comparison, here is a man who has been syphilitic for the last 16 years and who also has some boils. If on the strength of his past history one would be inclined to think of syphilitic gummata the aspect of the lesions would soon shatter this hypothesis.

What is the preventive treatment of furunculosis and by what means can we prevent its attacks? Innumerable remedies have been brought forward with this object. Yeast was much employed some years ago, but its success was apparently inconstant, for it is much less talked of at the present moment. Patients suffering from boils were recommended by Hardy to take at each meal a teaspoonful of creasote in half a glass of Vichy water and to continue this treatment perseveringly for a long time, with the idea that boils developed in patients with an arthritic diathesis. Professor Gaucher has seen excellent results from this treatment, but he prescribes at the same time an internal antiseptic—boric acid. Six grains are given at each meal, well diluted, and dissolved in the liquid which the patient takes with his meal. When given thus it causes no gastric pain. Finally, these patients often improve under treatment with arsenic. These various methods can be combined. Thus, for one week Hardy's treatment may be prescribed, then for a week solution of boric acid, and then a week of arsenate of soda. Although this treatment has no pretensions to be a panacea for furunculosis, it sometimes gives most successful results.

Tertiary papulo-squamous syphilide in a man, aged 62 years.—The patient had a chancre when 20 years of age. During 35 years the syphilis remained latent, then some tertiary lesions appeared, and now there is an irregular circinate indurated patch on the back measuring about ten by six inches, the edge of which is raised and the centre is clearing. The case is interesting in that a short mercury treatment administered when the chancre appeared gave an immunity of 35 years, while a thorough treatment given six years ago, when the first tertiary lesion showed itself, only cured that lesion but did not prevent the appearance of fresh tertiary lesions. Mercury must always be given in sufficient doses early when the toxins are still active in order to produce definite and lasting curative effects.

Coexistent sarcoma and iodide eruption.—The patient had an undoubted sarcoma of the neck and in addition a single localised raised vegetating lesion of the left hand of about the size of a five-shilling piece. The lesion had a purplish border with surrounding infiltration, the edge was slightly raised and the floor was irregular and secreting a yellowish fluid. There were no similar lesions elsewhere. The lesion on the hand was similar to one reproduced in a cast in the museum of an iodide eruption, and it turned out that this patient had been taking iodide of potassium for the sarcoma on his neck, and the iodide had produced this lesion on his hand in addition to other toxic symptoms. He will, of course, be given no more iodide and we may promise him a speedy cure of the trouble to the hand.

London, W.

TREATMENT OF ALCOHOLISM IN MOSCOW.—The Moscow government has decided to remove the alcoholic cases from all the town infirmaries and to gather them into a special department near the Hospital of Psychiatry.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The following entrance scholarships have been awarded:—The Epsom scholarship (100 guineas) to L. H. Taylor; the Livingstone scholarship (100 guineas) to C. J. Fox; the Huxley scholarship (55 guineas) to H. F. L. Hugo; and Universities scholarships (each 72 guineas) to C. Beards and T. W. Wade. Entrance scholarships have also been awarded to L. M. Webber (60 guineas), to E. S. Calthorp (40 guineas), to R. G. Dainty (30 guineas), and a Universities exhibition (36 guineas) to J. J. S. Rowe.

Reviews and Notices of Books.

Serums, Vaccines, and Toxines in Treatment and Diagnosis. By W. CECIL BOSANQUET, M.A., M.D. Oxon., F.R.C.P. Lond., Physician to Out-patients, Victoria Hospital for Children; Assistant Physician (late Pathologist) to Charing Cross Hospital; formerly Fellow of New College, Oxford. With 8 Figures in the text. London, Paris, New York, and Melbourne: Cassell and Co. 1904. 12mo, pp. 344. Price 7*s.* 6*d.*

WHILST many text-books, more or less voluminous, on serum therapy have already appeared in the German tongue the book under notice is, we believe, but the second that has been published in England specifically dealing with the subject. Nor perhaps is the reason far to seek, for serum therapy is still in its infancy, dating back no further than 1890, when the *Deutsche medicinische Wochenschrift* published a joint paper by Behring and Kitasato announcing the discovery that animals infected with virulent diphtheria bacilli could be saved by the subsequent injection of serum obtained from animals immunised to that organism. The employment of antiserum in the treatment of diphtheria was at once taken up with the result that the value of the method was speedily recognised. Moreover, the success of the treatment in this particular disease at once raised the hope that similar methods would prove equally efficacious when extended to many, if not all, the bacterial infections. Now, after a practical test extending over some ten years of serum therapy as applied to many diseases a careful perusal of Dr. Bosanquet's manual will show to what extent that hope has been realised.

In a manual such as the present, addressed primarily to the professional man in active practice, the author has properly recognised the obstacles which prevent the bulk of his readers from familiarising themselves with the many and various phases of research work on immunity and kindred subjects. He has therefore devoted his earlier chapters to a discussion of those elementary principles and theories a correct appreciation of which is so essential to the intelligent application of serum treatment. A short historical retrospect serves to introduce the subject of artificial immunisation and to explain the nature of infection and the theories of the pathogenic action of micro-organisms; and in the following chapter Dr. Bosanquet gives a coherent and consecutive account of the facts elicited by recent work—facts which provide the basis for our present-day conception of immunity, and in this section matters are considerably simplified by tabulating the various synonyms of "immune body" and "complement" respectively. Hæmolysis (illustrated by a few striking diagrams), cytolysis, and agglutination are all considered in turn and lead up to a clear exposition of Ehrlich's side-chain theory of immunity. And here we cannot but admire the wise discrimination exercised—clear evidence of the practical teacher—in selecting the experimental work necessary to illustrate the theories; nothing irrelevant to the main issue is admitted, and very little that is pertinent to the subject is missing from its proper place. Indeed, the only point of real importance which is not dealt with is the rôle of phagocyte viewed in the light of Dr. A. E. Wright's work upon "opsonins"—work too recent, no doubt, to be incorporated in the present volume. The preparation and standardisation of antisera and of vaccines in general are described without entering upon details and minutiæ necessary only to the laboratory worker; then follows the usual technique of administration.

The agglutination test and the utilisation of toxins in diagnosis, although clearly set out, are dismissed in a few pages. In connexion with the former as applied to the diagnosis of enteric fever, we are glad to note that the author insists on both a time limit (half an hour) and a dilution (1 in 50), for undoubtedly much of the criticism directed in the past against this test has arisen from neglect of essential points such as these by inexpert workers. Then commences the description of specific antisera arranged under the headings of the various diseases in which they are employed, the arrangement of the matter being fairly uniform in the succeeding chapters. First the causation of the disease is briefly noted, next the method of preparation and standardisation of the appropriate antidote is outlined, and then the evidence for or against its use is impartially discussed, followed by the dosage and method of administration and notes on the serum diagnosis. Each chapter or section concludes with a few succinct paragraphs in which the author's opinions are stated with a dogmatism which, after all, is absolutely necessary in a book of this character. Footnotes, too, are appended to most of the sections specifying the makers of the various sera, the price charged, and the strength.

Diphtheria, which holds the premier place, is utilised to exemplify the subject of the interaction of toxin and antitoxin as affecting the dosage of antitoxin serum. The tabulated returns from hospitals under the Metropolitan Asylums Board, as well as from American sources, bear convincing testimony of the efficacy of diphtheria antitoxin and fully justify the author's conclusions. Tetanus is dealt with next, but although a typical toxæmia and caused by an organism which elaborates *in vitro* a toxin even more powerful than that of the diphtheria bacillus, the results of treatment with antiserum are far less successful and the instructions as to dose and site of injection lack the force of those referring to diphtheria. The nature and action of snake venoms are carefully explained and although the reader is enjoined to use Calmette's antivenene promptly in *all* cases of snake bite the value of this remedy in poisoning by the cobra is alone insisted upon. Small-pox and vaccinia come next and in discussing the causal agent the recent researches of Councilman receive due recognition. The value of, and necessity for, vaccination and revaccination are well brought out by reference to published statistics, together with other points, such as the varying degrees of protection afforded as judged by the number of insertions and different sizes of scars. In speaking of glycerinated lymph Dr. Bosanquet remarks, "but few, if any, specimens of lymph are germ free." Both the ordinary and the intensive treatments of hydrophobia are well described and the statistics quoted from the Pasteur Institutes of Paris, New York, and Kasauli are sufficiently convincing for all but the most captious critics.

From this point onwards, however, disappointment awaits the reader who expects to find antisera for other infections as well vouched for as those already dealt with. Thus for septicæmias, such as plague, enterica and cholera—also for tuberculosis—one observer advocates a bactericidal serum and another a vaccine, but, truth to tell, although in some cases a serum or a vaccine has sometimes given promising results each and every preparation when weighed in the balance has been found wanting. Biological research will no doubt in time evolve successful antidotes for all bacterial infections but that time is not yet, and of this the author is well aware, consequently in his conclusions we are frequently confronted by some such statement as: "Sufficient evidence is not yet available to enable us to decide as to the efficacy of" such and such a remedy, and so on. Space is insufficient to deal with the contents of this work seriatim, suffice it to say that diseases other than those of known bacterial origin are also discussed—cancer and its serum treatment (also treatment by Coley's fluid), Graves's disease, epilepsy, hay fever, and epizoötic diseases. A few pages, too, are devoted to artificial sera—Trunecek's serum, and the like. The author is to be congratulated on the

clear and graphic account which he has provided of the work that has already been carried out and is now being attempted in the domain of serum therapeutics. Further, by an impartial statement of evidence Dr. Bosanquet has provided the general practitioner with a guide which will enable him to weigh the evidence and to decide for himself what prospect or hope is afforded by the employment of a particular serum or vaccine in his own treatment of disease.

A Manual and Atlas of Medical Ophthalmoscopy. By Sir WILLIAM R. GOWERS, M.D., F.R.C.P. Lond., F.R.S. Fourth edition. Edited by the Author and MARCUS GUNN, M.B. Edin., F.R.C.S. Eng. London: J. and A. Churchill. 1904. 8vo, pp. 318. Price 14*s.* net.

Sir William Gowers's work has been for a quarter of a century the standard book of reference both for the physician and for the ophthalmic surgeon, as indicating the relations between general affections of the system and the appearances presented by the eye when examined with the ophthalmoscope. When the first edition appeared it stood almost alone and its value was fully appreciated by all practitioners. The employment of the ophthalmoscope, instead of being practised, as was then the case, by a few, is now common to many physicians and the labours of the members of the ophthalmological societies at home and abroad have combined to accumulate a large mass of facts which have proved of great value in the diagnosis, forecast, and treatment of disease. The material at his disposal has at length proved too much for Sir William Gowers to deal with single-handed and he has therefore secured the services of an able surgeon, Mr. Gunn, who has had very large experience in the out-patient room and wards of the Royal London Ophthalmic Hospital, to assist him in selecting and arranging the results of recent inquiry in accordance with the general plan of the work. In this he has acted wisely and well, for the outcome is that the work is a most useful and trustworthy guide both to the physician and to the ophthalmic surgeon.

The opening chapter presupposes on the part of the reader some familiarity with the use of the ophthalmoscope and is occupied with a description of the fundus and particularly of the vessels in regard to the relative size of the arteries and veins, their course and the structural changes in them and in the circulation visible to the naked eye. Such phenomena as the pulsation of the retinal arteries and veins, once thought to be extremely serious, are discussed, and whilst shown to be almost constant in aortic regurgitation they occur, it is pointed out, normally in rare instances in the retinal arteries and frequently in the case of the veins as they traverse the disc, having been observed by Mr. Lang and Mr. Barrett in three-fourths of their hospital patients. The different views of the causation of the pulsation in the retinal veins expressed by Coccius, v. Carion, Donders, Jacobi, and Helfreich are given; the true explanation in the author's opinion is that owing to close approximation of the retinal artery and vein at the scleral ring the arterial distension compresses the vein and causes a temporary obstruction to the return of the blood. The ophthalmoscopic appearances presented by the normal optic disc and of the disc under pathological conditions are given in great detail and with much precision. To write such a chapter as that on neuritis of the optic nerve innumerable and most careful observations, both by the direct and indirect methods of observation, must have been made, a still larger number of notes taken, infinite time and labour spent on the illustrations which Sir William Gowers tells us were all done with his own hands, and much thought and consideration expended in blending the scattered observations contained in transactions, reports, and journals into a connected whole which may be read with pleasure as well as profit by the general physician and by the expert. At first sight the illustrations, which are in sepia, do not appear to be well adapted to reproduce the appearances in the fundus seen with the ophthalmoscope, but a more attentive examination of them shows that the minutest detail of the size, position, and course of the vessels and of the shades of even the slightest effusions can be represented with extreme delicacy and accuracy.

The second part of Sir William Gowers's treatise is devoted to an account of the ophthalmoscopic changes that may be observed in special diseases, such changes as appear, for example, in diseases of the membranes and the substance of the brain and spinal cord, in fevers, in diseases of the heart, kidneys, and lungs, and in other conditions. The appearances presented in degeneration, and in particular in tabes dorsalis and locomotor ataxy, will be studied with much interest on account of the large experience of the author. He finds that in the last 400 cases which he has seen, atrophy of the optic nerve, which is usually bilateral, only existed in 26, or in 6·5 per cent. In idiopathic epilepsy the appearance of the fundus oculi between the paroxysms is, as a rule, normal. He has examined very carefully several thousand epileptics and has found in most cases every feature of the fundus to be such as may be observed in persons not epileptic; during the attack the veins enlarge and become darker but no change is observable in the retinal artery. Sir William Gowers, without denying the occurrence of visible changes in the fundus as the result of railway accidents which are so often the subject of litigation, is evidently suspicious of them, believing that "the pathological nature of many of the appearances described in these cases has been the result of an affection of the mind of the observer rather than of the eye observed." We can give this work no higher praise than to say that it belongs to that class of books which Lord Bacon pointed out as worthy to be chewed and digested, and there are few readers who will not derive much profit from its perusal.

LIBRARY TABLE.

Practical Chemistry. By P. A. ELLIS RICHARDS, F.I.C. London: Baillière, Tindall, and Cox. 1904. Pp. 136. Price 3*s.*—Mr. Richards's teaching experience with medical students amply qualifies him to write a practical handbook suitable to their needs in regard to a course of chemistry. In the book before us he has kept within the limits of the requirements of the preliminary science examination of the Conjoint Board of the Royal Colleges of Physicians and Surgeons and the preliminary scientific examination of the University of London. An undoubtedly valuable feature of the work is a section on elementary practical toxicology and we think a chapter might have been added with advantage on some of the simple methods used in the analysis of urine. The author has evidently taken great care in reading the proof sheets, for in spite of the number of equations given and formulæ represented we have not found any error. On p. 26 it is stated that acids do not aid in dissolving calcium sulphate, a statement which is not strictly correct according to Fresenius, while on the same page the same may be said of the statement that powdered antimony is insoluble in HCl. As a matter of fact, metallic antimony is appreciably soluble in distilled water. It is stated on p. 65 in a footnote that certain carbonates—e.g., calcium and magnesium—are soluble in water containing carbon dioxide. We are under the impression that all the carbonates are more or less soluble in water saturated with carbonic acid gas. These are, however, comparatively unimportant points which in no way affect the general accuracy of the book. The chapters on preparations and volumetric analysis are well done and should be very helpful to the student. They are evidently

based on the practical experience of the author; this part of the course, we think, is very important in its instructive aspect and we are glad to find that Mr. Richards has given undoubted care to it. Altogether the book is an admirable introduction to elementary qualitative and quantitative analysis and is sure to be appreciated by the general student and by the medical student in particular.

Health and Disease in Relation to Marriage and the Married State. Edited by Geheimer Medizinalrath Professor Dr. H. SENATOR and Dr. Med. S. KAMINER. The only authorised translation from the German into the English language by J. DULBERG, M.D. Würzburg, of Manchester. London and New York: Rebman, Limited. Vol. I. Pp. 498. Price for two vols., 30*s.* net (cloth), 35*s.* net (half leather).—In his introductory chapter Professor Senator reminds us that while the laws as to marriage and succession have been drawn up by all civilised states with the utmost care and regard to the minutest details, on the other hand, the question of the somatic condition in reference to marriage and the marriage contract has hitherto been little thought of. The effect which the physical state of husband and wife has upon each other or their union; the influence which marriage has upon the life and the health of the married couple and their descendants or even on the welfare of whole families and communities,—these questions have as yet received outside medical circles, and particularly at the hands of legislatures, either no recognition at all or not as much as is demanded by our present knowledge and views. The author writes: "Marriage can be, on the one hand, a source of disease or the aggravating cause of pre-existent diseases; *vice-versâ*, diseases or physical defects can have a disturbing and detrimental influence upon marriage, and it is, finally, possible for marriage to consummate the cure or alleviation of conditions of ill-health." In this book an attempt is made to collect all the questions concerning health and disease in connection with marriage into a comprehensible *ensemble* that shall serve to the medical man as a source of information and as a guide to his conduct. The work may be accepted as a help and a counsellor to the practitioner by informing him of the extent to which medical interference is possible. Dr. Dulberg has endeavoured to give a faithful version of the German text. In the first volume, which is now before us, the author treats of the following subjects in 12 chapters—the hygiene of marriage; inherited and congenital disease and predispositions to disease; consanguinity and marriage; the influence of climate, race, and nationality on marriage; sexual hygiene; menstruation, pregnancy, child-bed, and lactation; constitutional diseases; diseases of the blood; disease of the vascular system; diseases of the respiratory and digestive organs; and renal diseases. In the chapter on consanguinity in marriage the practitioner is advised to discourage the marriage of blood-relations. "For according to the laws of heredity the possibility is not precluded that two similar predispositions which on account of their slight intensity were not recognisable in the parents individually may combine in the offspring and become so pronounced as to assume a definite pathological character; and this is, moreover, especially likely to be the case in consanguineous marriages." The chapter on sexual hygiene in married life treats fully many most delicate questions. The medical man will find in the work much information that will be useful to him. The recommendations as to advice to be given to patients are sound.

Beri-Beri: its Symptoms and Symptomatic Treatment. An essay printed by the Board of Trinity College, Dublin, for the author. By PERCY NETTERVILLE GERRARD, M.D. Dub. London: J. & A. Churchill. 1904. Pp. 95. Price 2*s.* 6*d.* net.—Dr. Netterville is a district surgeon in the Federated Malay States Civil Service. In this essay he first classifies cases of beri-beri into (1) the œdematous or wet cases; (2) the mixed; (3) the dry or atrophic cases; (4) the rudimentary; (5) the fulminating or acute pernicious cases of Scheube; and (6) the spasmodic. He then devotes 26 pages to the treatment, which he says should be purely expectant, symptoms being dealt with promptly as they arise. He discusses the etiology and briefly considers 14 theories which have been advanced by various writers. He takes exception to the word "dormant" in Dr. Hamilton Wright's theory and expresses a doubt as to whether "the organism escapes in the fæces." He considers that the only cases in which anything will be gained by examination of the fæces for the bacterium of beri-beri will be those cases in which an acid diarrhœa exists. Half of the book is taken up with five appendices. In Appendix A are included all cases of beri-beri admitted to the gaol hospital, Pudoh, Kwala Lumpor, Federated Malay States, during the period in which it was in the author's charge. Appendix B deals with an analysis of cases bearing on the first symptoms of the disease. The bacteriology of beri-beri is considered in Appendix C. Appendix D deals with inoculation experiments and the final appendix consists of a number of prescriptions which have been found useful in the symptomatic treatment. The Board of Trinity College, Dublin, has also published for the author "Extracts" from this essay, a small book of 52 pages, published by Messrs. J. & A. Churchill at the price of 1*s.* 6*d.* net. This smaller work contains the essential part of the author's essay and as it is very practical we recommend it to the students of tropical medicine. Both books contain an elaborate and useful table of differential diagnosis and the original essay has a chart of the rainfall and of beri-beri cases, to show the non-dependence of the disease upon the rainfall and the atmospheric conditions associated with it.

The Field Naturalist's Quarterly. September, 1904.—This quarterly, which is now in its third year of publication, maintains its high standard of excellence. Among the many articles of interest in the present issue that on the Salmon by Mr. A. Wade, F.E.S., will appeal to all who in any way take an interest in Salmo salar, and Fishermen and Insects by Mr. C. Morley, F.E.S., and Fishes useless to Man, by Mr. F. G. Aflalo, F.R.G.S., will be welcomed by the pisciculturist as well as by the naturalist. Dr. G. R. Leighton, the editor, continues his "Reptile Studies," the present contribution being a chapter on Adder Hunting in the Highlands. The announcement is made that in the forthcoming issue for March, 1905, an important series of articles on the Life-history and Development of the Frog will be commenced. The number under notice contains two examples of the illustrations which will accompany these articles representing (1) frog-spawn taken in February last showing the eggs imbedded in a jelly-like mass, and (2) the protruding tadpoles as yet mouthless and living upon their unexhausted mass of yelk. These illustrations are particularly well executed.

Health in Infancy. By T. M. ALLISON, M.D. Durh. Illustrated. Newcastle-on-Tyne: T. and G. Allan. 1904. Pp. 40. Price 1*s.*—This little brochure of 40 pages, which is the substance of a paper read before the Newcastle Clinical Society in the year 1902, is a plea in favour of breast-feeding for infants. There is nothing new or original in the advice which Dr. Allison gives in this little pamphlet, but then it is intended for mothers rather than for medical men or nurses to read. It contains in the form of an appendix some rather elementary references to feeding, clothing, and nursery management. So far as the information which is given in this list is concerned it is accurate, and doubtless Dr. Allison's little book will be found useful by those for whom it is intended and will serve as a useful proem to larger works upon the subject.

THE LANCET.

LONDON: SATURDAY, OCTOBER 8, 1904.

The Opening of the Medical Schools: the Introductory Addresses.

MEDICINE, in the generic significance of the term, presents to-day an *ensemble* of component arts and sciences so complex and heterogeneous that when we come to examine the collective demands made on the patience and endurance of the large number of students who espouse the calling of medicine it is impossible to despair of the future of the race. For a nation which can send so many of its sons to study for a profession from which so much is demanded and to which so little is given in return must possess unbounded confidence in its powers of intellectual endurance. In his opening address to the students of King's College Hospital Dr. T. BUZZARD explained the advantages which the possession of a medical degree conferred on those who held this honourable distinction and he exhorted all the students at this hospital, whether they intended to enter general practice or to devote themselves to any particular branch of the profession, to aim for the highest and not to be contented with merely a qualification to practise which could be more easily obtained. He further proceeded to explain that by the impending removal of the hospital itself to the Camberwell district the faculty of science of King's College would be left in exclusive possession of the field for the teaching of the preliminary and scientific subjects of the medical curriculum. Moreover, he anticipated that when the arrangements for the new University of London were completed King's College, owing to its central position and established facilities for scientific teaching, would attract a large number of students from other medical schools in London. He emphasised the fact, however, that no attempt would be made to alienate such students from the hospital to which they properly belonged by the compounding or reduction of fees; they were to be left absolutely free to select for themselves the hospital to which they would ultimately be attached. In the new arrangements which will be made by the University of London with regard to medical degrees, there can be little doubt that both King's College and University College will come in for a large share of the scientific teaching. Dr. BUZZARD was therefore probably well advised, in view of the jealousy which this centralisation may excite, to point out that there would be no encroaching on the rights of independent centres of purely medical teaching. It is exceedingly fortunate for both King's College and University College that they are at the present moment in the happy position of being able to separate their departments of medicine proper from the departments which are concerned with the teaching of the preliminary and scientific subjects. This provision for the expanding necessities of the London student of medicine was again referred to by Dr. S. H. C. MARTIN at University College when, in the capacity of dean, he presented the annual report at the opening of the winter session. So that with these and other proposed facilities for the more advanced scientific training of students it is probable that Dr. BUZZARD in no wise exaggerated the case when he remarked that "in its lately developed form the University of London was certainly coming to occupy the highest place in the education of the medical profession."

Professor ALEXANDER MACALISTER'S introductory address at St. George's Hospital on the Evolution of the Medical Curriculum further emphasises the power of intellectual endurance required and expected from the present-day medical student if, as Dr. BUZZARD recommends, he "aims at the highest." This aiming at the highest is a very different thing from *walking the hospitals*, an expression which perhaps fairly accurately represented the method of acquiring medical knowledge 30 or 40 years ago. Professor MACALISTER, who himself *walked the hospitals* as long ago as this, recalls in his address "being one of a mob of students who followed the surgeon round the wards on the chance of picking up some crumbs of wisdom" and how "not a few of his class fellows got their licence to practise without ever having put on a bandage, taken a case, written a prescription, or used a stethoscope"—a very different curriculum from that provided for the modern student. Professor J. N. COLLIE in his address to the students at University College Hospital left out no claim which can be urged in favour of the study of organic chemistry as a preliminary to the proper understanding of the functions of the human body; he compared the chemical process which takes place in the human laboratory to the mysterious workings of the machinery of a motor-car, and those who are familiar with the almost human machinations of these vehicles to conceal the origin of their pathological manifestations will appreciate the illustration. Dr. F. J. WETHERED at the Middlesex Hospital explained the necessity there was for the student to supplement with practical work the vast theoretical knowledge which is required for the exigencies of examination.

With the practical knowledge which only can be acquired by constant attendance in the wards Sir WILLIAM MACEWEN, who this year delivered the Huxley Address at the Charing Cross Hospital, chose as his subject the interesting pathological problem, the origin and causation of appendicitis. In declining to take the pessimistic view held by most biologists that the human body is full of organic imperfections he held that the cæcum and the appendix vermiformis were not the functionless organs that they were generally held to be. Shortly stated, his theory is that the ileo-cæcal valve exercises an automatic control over the amount of the contents of the bowel which pass from the small to the large intestine and that the rate of flow is determined reflexly by the power of the cæcum to digest and to deal with the food which reaches it. The Huxley Address certainly presents views which are original and interesting and which, though hardly calculated to impress the biological mind, may contain much that is true in them from the point of view of surgical treatment.

The majority of the addresses this year are certainly well worth reading and to those who would form a more intimate acquaintance with them we commend the full reports which we publish in another part of this issue.

Operatives and Vision.

WE have received a copy of the *Rochdale Observer* of Sept. 24th, containing a highly important letter from Dr. GEORGE GEDDES of Heywood, on the question of defective sight among factory operatives and upon the great importance of leading employers to recognise that it would be sound policy for them to encourage the use of spectacles among their "hands," as tending, whenever they are required, not only to the comfort and the security of the workers, but also to the production of better work. The superstitions of ignorance and stupidity die hard; and one of them is a belief that a need for spectacles is necessarily, or even frequently, an evidence of defective or of failing sight and that the eyes supplied with them will nevertheless be of something below the proper standard of visual acuteness and endurance. An analogous superstition is said to exist with reference to grey hair, insomuch that the principal purchasers of hair-dye, and the most frequent sufferers from the paralysis produced by the lead which it frequently contains, are not, as might be supposed, *les coiffeuses de Ste. Catharine*, but honest hardworking men of middle age upon whose temples Time has written some indications of his progress. Such men are frequently far superior to their juniors in skill and experience, and they are far less likely to be diverted from their duties by anxiety about possible "winners," but it is their sad experience that many employers will only give them work at reduced wages on the plea that they are "getting old" and are consequently of decreased efficiency. Together with the grey hairs will come, of course, diminished power of accommodation, with its attendant diminution of acuteness of vision at a near point; and, although the consequent defect would not only be relieved by spectacles, but so absolutely corrected as to leave nothing to be desired, the sufferers often do not dare to have recourse to them and struggle on, doing imperfect work by reason of imperfect sight, and not permitted to avail themselves of the assistance which would at once restore their eyes to the keenness of juvenility. It is, of course, possible that some part of the difficulty may have arisen from the frequency with which persons of the class described have in former years been supplied with inefficient glasses by the simple ignorance of watchmakers and other dealers in them, just as they are likely to be in the future by the pretentious ignorance of the self-styled "optologists," but this is a difficulty which it ought to be well within the power of the medical profession to obviate. The medical officers of clubs and benefit societies should be in a position to prescribe unhesitatingly what is required and the various trade unions could do no more useful work than by insisting upon justice to their members in respect of permission to use spectacles without being subjected to loss.

Dr. GEDDES does not confine himself to the requirement of glasses arising from presbyopia but deals also with requirements arising from defective refraction, and therefore limited to no period of life. Defective refraction may, of course, be associated with many forms of disease which then require to be taken separately into account and which may have a greater or less effect upon fitness for a particular industry. But in the enormous majority of cases defects of refraction are defects of shape only, and these, while they may entail great suffering in continued use of the eyes upon near work, and imperfect work by reason of the suffering, admit of being absolutely corrected, with complete and immediate relief of all the consequences previously flowing from them. The only forms of industry in which a need for spectacles should be regarded as a disqualification are those conducted in hot moist rooms in which dew would constantly be liable to collect upon the glasses and to obscure vision more or less completely. It is to be hoped that the whole question of refraction in children will before long be seriously considered by the new educational authorities; and that a need for glasses, when it exists, will not only be recognised and supplied at school but will also be attended in proper cases by an official declaration that no defect of sight, or inefficiency for any kind of ordinary work, is in the least degree implied. In the meanwhile medical practitioners, and more especially certifying surgeons to factories and medical officers to clubs and benefit societies, might do excellent work by endeavouring to convince employers and foremen that it is very much better to have a particular "hand," whether male or female, adult or child, working easily and comfortably and seeing well in glasses than to have the same person seeing badly without them and never unconscious of the struggle in which the eyes are engaged. These are the two conditions between which they have constantly to choose and the choice actually made is usually the wrong one. Employers would be fully entitled to ask that any "hand" who wore spectacles should produce a medical certificate of good vision when provided with them, but no more than this could reasonably be required. Dr. GEDDES deserves the thanks of the whole operative class for the manner in which he has taken up the question and we hope that his benevolent endeavours will before long be crowned with the success which they so well deserve.

Discretionary Powers in Dispensing.

ON many previous occasions during the last few months it has been our duty to call attention to the unsatisfactory relationships which have been springing up between medical men and dispensing druggists. In general the medical practitioners have been assailed for encroaching upon the domain of the dispensing druggist and we have frequently indicated that, in our opinion, local conditions often force the practitioner to dispense his own medicines even if such dispensing be distasteful to him. From the other side it has often been suggested that from lack of training this practice is prejudicial to the public and that it encourages the use of stock mixtures. It has also been urged that the dispensing druggist labours under a further disadvantage since the drugs which he supplies may be officially examined and he is subject to prosecution if they are not of the standard established in the British Pharmacopœia. He has been represented as a highly trained individual anxious

to work for the public welfare and hampered in his desires to carry out instructions *secundum artem* by the unworthy competition of the practitioner who dispenses his own medicines. That there is another side to the picture has been painfully emphasised by some recent disclosures which show that the dispensing druggist cannot always be trusted to perform the simplest possible functions—for example, to dispense accurately when a clearly written prescription is placed before him or to exercise due discretion with regard to the sale of poisons to the public. In two cases, the details of which are supplied to us by our Birmingham correspondent,[1] test prescriptions were carefully and legibly written by the assistant medical officer of the health department of Birmingham and taken by a representative to two different shops. In each case the result formed the foundation of a prosecution. In one there was distinct evidence of gross carelessness; a six-ounce mixture had been ordered and the directions were that the dose should be a teaspoonful. The capacity of the bottle supplied was only five and a quarter ounces, the amount of active ingredient fell a little short of the quantity ordered, and the dose given on the bottle was a tablespoonful instead of a teaspoonful. This last was the most important error and yet there was clearly no intention to defraud; it was so obviously an error—an accident of momentary thoughtlessness—that this incident was closed with censure and with the payment of the costs of the prosecution.

The second case was far more important and its gravity was accentuated by the line of defence. According to the prescription the six-ounce mixture should have contained 240 grains of quinine sulphate and the directions showed that the dose was to be "a dessertspoonful every four hours as required." The dispenser made inquiry as to the severity of the case and remarked upon the extraordinary dose. He supplied a mixture, however, and only indicated that he had not followed the directions when the bottle was handed to an inspector. Thinking that there had been a mistake he said that he had put in half a drachm of quinine sulphate instead of four drachms. His defence was that he should not think of putting half an ounce of quinine into a six-ounce mixture, that the ordinary dose was from one grain to two grains, and that he thought the prescription was too well written to have come from a medical man, and concluded that it was a copy. As against this it was evident that there was no mistake, since four drachms of quinine sulphate had been clearly written in the prescription, so that there could be no confusion or error in the use of the symbol for half an ounce in lieu of that for half a drachm. The whole point turned on the duty of the dispenser when confronted with conditions which, in his opinion, were unusual and the bench held that he might have absolved himself from all responsibility by consulting the prescriber. With regard to both cases it will be generally admitted that it is not customary to write a prescription for a six-ounce mixture with directions that the dose should be only a teaspoonful or a dessertspoonful, but in neither case was there any ingredient which would be liable to cause fermentative or other changes in the mixture. Provided the limits of solubility were not exceeded there was no reason why the prescription should not have been dispensed in accordance with instructions. If the dispenser felt any reasonable doubt about the propriety of the dose or the possibility of error, surely it would have been more in accordance with general custom for him to have communicated with the prescriber instead of reducing the dose to an eighth part of that ordered. The responsibility for the dose of any drug prescribed rests solely with the medical practitioner, and although material assistance is afforded by the Pharmacopœia it must not be forgotten that the doses mentioned therein are intended for general guidance and are not authoritatively enjoined. In this case, however, the dose (ten grains) does not exceed Pharmacopœial limits, even if it was not in accordance with the ideas of the dispenser of the "ordinary dose."

We have no desire to foment discord or to introduce any spirit of bitterness into a controversy on the relations which should subsist between the prescriber and the dispenser. For the maintenance of harmony it must be clearly understood that the discretionary powers of the dispenser must not entail any prospect of alteration of dose. There must be a sense of security in the coöperation, a security based on the assumption that no radical change will be made without previous notification. Generally speaking, when a prescription presents any unusual feature it is customary for the dispenser to communicate discreetly with the medical man and to satisfy himself that this is intentional. Many practitioners are able to recall with gratitude instances of their indebtedness to those who have courteously followed this practice. It is often difficult to concentrate attention upon the prescription while the patient or his friends are seizing upon a momentary lull to pour out a fresh list of symptoms or inquiries. The *entente cordiale* between prescriber and dispenser can only be maintained when the former is sure that his intentions will be implicitly followed, unless it is necessary to refer to him in the face of presumably obvious error.

With regard to the sale of poisons to the public and the discretionary power of the dispenser it is curious that within the past few days two inquests have been held by the same coroner in which death resulted from the employment of overdoses of morphine. In the first case the morphine was originally prescribed for the mother of the deceased some ten years before and the supply had been made up so often that the druggist did not deem it necessary to see the prescription every time. In the second case the poison had been supplied on the presentation of a prescription, written and initialled by the deceased, a French advocate. One jury recommended that there should be some restriction on the use of old prescriptions, while the other suggested that greater precautions should be taken to ascertain that prescriptions bore the full names and addresses of duly qualified medical practitioners. These two cases throw such a lurid light upon the "discretion" displayed in the sale of morphine that comment becomes almost superfluous. All attempts to check the development of the morphine habit or to reduce the number of cases of "suicide whilst temporarily insane" become futile so long as dispensing druggists in the exercise of their "discretion" repeat prescriptions containing poisons over and over again without further endorsement by the

[1] THE LANCET, Sept. 24th, 1904, p. 922.

prescriber or take no trouble to ascertain that the prescription was ever written by a medical man. The dispenser who made up the above out-of-date prescription for morphine admitted that he knew it had been written by a medical man who was then dead. "Discretion in dispensing" seems to be more necessary in the supply of poisons to the public than in the modification and alteration of prescriptions clearly written by medical practitioners.

Annotations.

"Ne quid nimis."

THE OUTBREAK OF SMALL-POX IN DEWSBURY.

LOCAL government is, in our view, an eminently healthy force but, like all human affairs, it has its abuses as well as its uses. At times it stimulates by its vigorous initiative the somewhat dormant activities of the central department, at others, by its ineptitude and the persistent neglect of its most elementary duties it calls for the firm intervention of the Local Government Board. Dewsbury and its small-pox appear to afford an admirable illustration of the negligent phase of local government evolution. With from 30 to 40 cases of small-pox weekly Dewsbury seems to fail in appreciation of its responsibilities to the public. The isolation accommodation is inadequate and unsuitable and the Dewsbury board of guardians has refused to open stations to facilitate the work of vaccination and re-vaccination upon economical lines, preferring that the work, if done at all, should be performed in the most costly and difficult manner. In these circumstances we are not surprised to read in the *Times* that "the public is becoming indignant at the manner in which the officials are dealing with the epidemic," although we should be glad to know precisely how much of the blame is due to the officials and how much to the town council, the board of guardians, and the Dewsbury joint hospital board. To begin with, the town council pays a general practitioner £80 a year to supervise the health of 28,000 people, and it is not therefore a matter for surprise that this medical officer of health has temporarily broken down under the present strain and that another general practitioner has had to be appointed to do the work. This town council also possesses a hospital which is inadequate in size, improperly situated, and badly administered. There are about 100 cases "isolated" in the building and the disease is spreading therefrom to the surrounding population. There is no resident medical officer and the patients who have been discharged allege that the staff of nurses is inadequate. We hear rumours, too, of a delirious patient escaping in his night-shirt and eventually reaching his home. The Dewsbury board of guardians, and it should be noted that the Dewsbury union embraces numerous and important urban districts, is markedly antivaccinationist in its administrative tendencies. It has also to be numbered among those who recently raised an "economic" cry and who protested against the excessive cost of vaccination. Its chairman, it is reported, gave evidence before the departmental committee appointed to consider these allegations of excessive cost. Now that small-pox is in its midst this very board, led presumably by the same chairman, has refused to open stations and so to save the public funds. Meanwhile the disease is spreading to other districts within its limits. The Dewsbury joint hospital board, which is also responsible for the isolation of cases of infectious diseases occurring in other districts than Dewsbury, has hitherto failed to provide accommodation for small-pox and its hospital for diseases other than small-pox is unsuitable for the isolation of this latter malady. Hence the Dewsbury town council has to "isolate" in the building to which reference has been made and an unfortunate disaster in the shape of a fire has recently destroyed in large measure some additions which were being made to this building. All this is eminently unsatisfactory and it betrays a local prevalence of that administrative inefficiency which it should be the aim of the central department to put an end to. The only remedy which would be likely to take effect at once would be strong action on the part of the Local Government Board. This Board has, we are glad to see, sent down one of its medical inspectors and as a result of his visit reforms are being urged upon the town council. We must confess that we should like to see the Board take the administration of the Vaccination Act out of the hands of the guardians and confer these duties, for the time at least, upon the West Riding county council, and it would also be a salutary lesson if the functions of the Dewsbury town council could also be transferred in similar fashion. Were this possible a lesson would be taught to negligent and obstinate local authorities throughout the country which they would not be likely to forget.

IN THE MATTER OF PATENT MEDICINES.

THE German correspondent whose letter on this subject we commented upon in THE LANCET of August 27th (p. 625) has returned to the charge with a long communication in which he dismisses our opinion upon the legal aspect of patent rights in medicinal compounds almost with contempt but devotes several pages to the ethical side of the question. His principal argument in support of his view that a monopoly granted to a discoverer of a new method of healing a given disease would not be contrary to public policy appears to be that the pecuniary profit to be derived from the invention acts as a stimulus to the would-be inventor who otherwise would not be encouraged to devote time and study to his task. He says on this point: "You cannot demand of the discoverer of a new remedy to renounce all personal benefit and to make a present to the public of his discovery which perhaps is the result of years of labour and large expense." This, however, is what, without any demand from anyone, men of science of all nationalities have ever done. They have devoted the best years of their lives to investigation and research simply for the benefit of mankind and have reaped from their efforts no pecuniary benefit in any sense proportionate to their achievements, which have been made literally a present to the public. Although we have pointed out that patent rights claimed for supposed medicinal inventions, as a rule, would be difficult to maintain in courts of law, instances can be given of discoveries which might quite possibly have been so protected and a single one should suffice to show how much the public would have suffered thereby. We may suggest vaccination as a scientific discovery which probably was at the time of its origin quite capable of being converted into a monopoly for its great discoverer by means of letters patent. Had he availed himself of his opportunity, as our correspondent would suggest that men of science should do, one of two things might have happened. He might have realised a vast fortune for himself and his descendants, to which Germany, no less than other nations, would have contributed, or, what is far more likely, the salvation of civilised mankind from the ravages of small-pox would either not have taken place or would have been postponed until his patent rights had expired. The patenting of nostrums or of ordinary chemical formulæ by quacks is quite a different matter. Their sale may be aided thereby but it takes place equally through the registration of trade marks and the aid afforded by copious

advertisement. Patent medicines of this class encourage ignorant people to experiment upon themselves with drugs the uses of which they cannot understand and to trust to useless or dangerous concoctions instead of either letting themselves alone or following if they are ill the advice of a medical practitioner. The patent rights claimed for goods of this kind would make very little difference to anyone who had any desire to obtain a similar article without having recourse to the patentee.

TECHNICAL INSTRUCTION FOR PLUMBERS.

THE Worshipful Company of Plumbers has issued a second series of diagrams for the use of teachers of classes for technical instruction in plumbing. They consist of 12 sheets measuring 53 by 31 inches. The subjects dealt with are pneumatics as applied to syphons and pumps; the construction of such fittings as flushing cisterns and water-taps; and various forms of gutters and lead work used in roof construction. An aero-hydrogen gas generator is also shown, the flame from which is utilised for joining lead by fusion. Three sheets are devoted to illustrate domestic hot-water work. In these the difficulty of showing the ramifications of such a system in an intelligible manner, within the limits of a theoretical drawing, has been well surmounted. These drawings are good and in the hands of a practical instructor will be a boon to teacher and pupil. The drawings are also reproduced in pamphlet form. It is presumed that these last are intended for the student's home use, after attendance at the classes, otherwise the explanatory notes are too brief, a certain knowledge of detail being presupposed. We can, however, strongly recommend them to the notice of all who take an interest in plumbing details and congratulate the Plumbers' Company on the good work in which it is engaged. The diagrams and pamphlets are published at the office of the Company at No. 1, Adelaide-buildings, London Bridge, E.C. The prices are: diagrams, £3 3*s.* the set of 12; and pamphlets, 1*s.* each.

QUADRUPLETS.

THE occurrence of four children at a birth is of sufficient rarity to render the record of all such cases of much importance. A very interesting case of quadruplets is described in the present number of THE LANCET by Miss A. C. Gowdey. Amongst 1,971,759 births registered in Berlin during the 74 years from 1825 to 1898 quadruplets were met with three times only, or a frequency of one in 657,253, or 0·0015 per 1000 births. The exact frequency of this condition is difficult to determine but these figures show how rare it is. Some 100 or more cases could no doubt be collected from the literature and 72 are mentioned by Gould as recorded in the catalogue of the Library of the Surgeon-General's Office, United States Army. There are several points of interest in the present case, amongst them the age of the patient and the fact that it was her sixth pregnancy. The researches of Matthews Duncan and Göhlert have shown that while the age of the woman at which the birth of twins is most probable is the period of five years from 25 to 29, the occurrence of triplets, on the other hand, is more probable during the five years from 30 to 34. Mirabeau's observations on 75 cases of triplets also tend to confirm these conclusions, whilst he has shown that the tendency to multiple pregnancies increases with the multiparity of the patient. Triplets, for example, according to Mirabeau and Saniter, are most likely to occur in women who have borne six children or more. Matthews Duncan also showed that the number of multiple pregnancies is directly proportional to the general fertility of the woman and the proportion of triplets is in direct relationship to the number of twin pregnancies occurring in any country. In Russia, for example, where the frequency of twin pregnancies amounts to about 1 in every 48 births, triplets occur once in 4000 births, while in France, where twin pregnancies only occur once in every 99 births, triplets occur about once in 8000 births. The greater the fertility of any race the greater its tendency to the production of multiple births. In quadruplets it is more common to find the children of different sex than of the same sex; in 23 out of 36 cases of this kind collected by Veit the sexes were different and in nine of the 23 there were two boys and two girls, as in the present case. Labour is usually premature and the children are most often stillborn, but both Nagel and Tarnier have recorded cases of quadruplets born alive at full term. In the present instance the combined weight of the four fœtuses amounted to about 2600 grammes, but a most remarkable case is recorded by Bayer in which the total weight of the four children amounted to as much as 9500 grammes or about 19 pounds. The uniovular development of each child and the presence of separate chorions are interesting and uncommon, as Miss Gowdey points out. Corradi in an examination of 14 cases of quadruplets found only two in which there were four placentæ. The most interesting case of all is, however, that described by Panizza, in which there were only one placenta and one chorion. The specimen is preserved in the museum at Pavia and the chorionic cavity contains two male fœtuses and an omphalopagus of male sex.

RUPTURE OF THE VAGINA DURING LABOUR.

RUPTURE of the vagina occurring during labour without any rupture of the lower uterine segment is a rare accident. The extension of a tear of the cervix into the vagina is, of course, not an uncommon event, but a tear of one or other of the vaginal fornices alone is seldom seen. In THE LANCET of Oct. 1st, p. 951, an interesting case of this description is recorded by Dr. P. L. Townley. In this instance examination under an anæsthetic seemed to show that the tear involved the vagina alone. It is often impossible to make quite sure during life that such is the case owing to the extreme thinning that the tissues of the cervix may undergo and the difficulty of determining that the tear does not extend beyond the fornix to the adjacent part of the cervix, and in the present case this possible source of error exists. Tears of the vagina may occur even where there has been no interference with the normal course of labour and where no operative procedure has been undertaken. Writing in 1901 Dr. Mieczyslaw Kaufman was able to collect nearly 100 cases from the literature, including two observed by himself. The maternal mortality from this accident is very high, amounting to about 70 to 75 per cent., and in this it resembles rupture of the uterus, the mortality of which, even with all the advantages of modern surgery, still amounts to about the same figure. The diagnosis of the condition is usually a simple one and not infrequently a loop of intestine is found in the vagina when the patient is examined. In the case recorded by Dr. Townley the condition of the patient was so grave that no treatment directed to the tear could be carried out, although he succeeded with considerable difficulty in delivering the child from the abdominal cavity by embryotomy. In cases where any part of the child or placenta has passed into the peritoneal cavity or where there is severe intraperitoneal hæmorrhage the best course to pursue is no doubt abdominal section if the patient is in a condition to stand the operation. In other cases so long as no septic infection is present the tear should be sutured from the vagina, but where this proves impossible or where there is any sign of septic infection the best plan is to treat the case by the use of a gauze vaginal plug. In the great majority of cases of this description the tear is situated in the posterior fornix of the vagina and Douglas's pouch is opened up; the case recorded in our columns is the more

interesting since the tear appears to have taken place through the anterior vaginal fornix, a very unusual site for such a lesion.

SUTURE OF WOUND OF THE HEART.

SUTURE of wound of the heart has recently become a recognised operation for which we are indebted to continental surgeons. This is chiefly due to the fact that stabbing is much less common in this country than in many others. In the *American Journal of the Medical Sciences* for September Dr. Francis T. Stewart has recorded the following case. A man, aged 20 years, was stabbed with a long rusty knife. He felt severe pain but was able to walk to hospital, a distance of "one and a half squares." Then he began to feel weak and was found crawling up the steps leading to the entrance. There was a small wound above the third rib about one inch to the left of the sternum. It was surrounded by an emphysematous swelling and bled continuously, the stream being accelerated by each expiration. The temperature was 97° F. and the pulse was 80, weak, and irregular in volume and rhythm. He was sweating and very pale and lay on his right side breathing 40 times to the minute in a short jerky manner. At times he complained of a little pain and severe dyspnœa. He had vomited once. The whole of the left chest was tympanitic except a small area around the wound. On auscultation the heart sounds were heard indistinctly. Under ether an operation was begun 45 minutes after the infliction of the wound. An incision was carried along the second rib for four inches to the sternum, down the left margin of the sternum to the fourth rib, and outwards along the fourth rib for four inches. The musculo-cutaneous flap so formed was dissected back and an opening in the chest was found between the third and fourth ribs, the knife having descended in its passage. The exposure was made more complete by continuing the sternal incision downward for two inches and the triangular flap thus formed was retracted. The third and fourth ribs were severed and forcibly turned towards the right, fracturing the costal cartilages near the sternum. The knife was found to have passed through the pleural cavity and wounded the anterior edge of the left lung. The lung had collapsed into the vertebral groove and the pleural cavity contained a large quantity of clotted and fluid blood. An opening into the pericardium, measuring three-eighths of an inch, was easily found by the spurting of blood with each pulsation of the heart. It was enlarged in the axis of the heart and a penetrating wound of the anterior wall of the left ventricle was found. It was parallel to the axis of the heart and measured about three quarters of an inch, being thus larger than the cutaneous, pleural, or pericardial wounds. Bleeding from this wound was free and continuous. The heart looked like a quivering mass of muscle and was beating so rapidly that it could not be said at what period of its cycle the hæmorrhage was greatest. The wound was closed by six stitches of continuous silk suture. During the suturing the coronary artery was punctured by the needle, causing profuse hæmorrhage which was controlled by an additional suture. The pericardial and pleural cavities were cleared of blood. The pericardial wound was closed with a continuous silk suture, a small opening being left for the passage of a gauze drain. The lung, which was not bleeding, and the parietal pleura were not sutured. A gauze drain was also placed in the pleural cavity. The severed ribs were approximated and the soft parts were sutured with silkworm gut. During the operation 24 ounces of saline solution containing adrenalin were injected into the circulation and strychnine and atropine were injected subcutaneously. On the following day the temperature was 103·4°, the pulse was 130, the respirations were 56, and the patient was delirious. During the next fortnight he continued to be very ill and suppuration took place beneath the flap. Then convalescence proceeded. The ribs united firmly with little callus formation. On the fifty-sixth day the patient was discharged; the pulse varied between 80 and 90; the left chest expanded little on inspiration and the breathing was slightly harsh. Ancient writers considered wounds of the heart immediately fatal but at the end of the sixteenth century Ambrose Paré published his celebrated case of a man who received a rapier thrust below the left nipple and pursued his antagonist 200 paces before falling down dead. At the beginning of the nineteenth century Jamain, Zannetti, and others wrote on the viability of patients after wounds of the heart, but it was not until 1867, when Fischer published his classical paper on 452 cases of wound of the heart, that it was shown that a person might live for days with a wound of the heart and that in from 7 to 10 per cent. of the cases recovery takes place.[1] In 1895 Rosenthal successfully sutured an experimental wound of the canine heart. In 1896 two unsuccessful attempts to suture wounds of the human heart were made and in 1897 Rehn published the first successful case. Up to the present 60 cases of cardiac suture have been recorded with the surprisingly high recovery-rate of 38 per cent. Five of the cases were gunshot wounds and in two of these recovery took place. The symptoms of wound of the heart vary. If the pleura is wounded and blood escapes into the pleural cavity there are anæmia and the signs of pneumo-hæmothorax. A splashing sound indicates pneumo-hæmopericardium; in some cases a friction sound is heard. If there is external hæmorrhage the stream may be continuous or in jets. If the blood is confined to the pericardium the pulse is very feeble and death may result from pressure on the heart. The diagnosis of wound of the heart may be difficult or impossible. The position of the external wound is not a safe guide. The rule in doubtful cases should be to enlarge the wound, to ascertain if it penetrates the chest wall, and if there be symptoms of hæmorrhage or of pressure on the heart to operate.

VIRTUE—BUT "NO CAKES AND ALE."

WE are accustomed to read the *Saturday Review* with a sense of due deference to staid and careful wisdom. When therefore our eye falls upon an article headed "A Fashionable Doctor," we anticipate a polite but possibly critical survey of the class of medical men who may properly be called "fashionable." For that there is such a class—at any rate in popular fancy—cannot be denied. We must confess to disappointment in our anticipations. The writer has not realised, to begin with, that a medical man may have "fashionableness" thrust upon him and that to be "fashionable" is therefore not necessarily to be incompetent. Moreover, he stultifies himself by declaring in one line that he does not ask "that the modern physician should be a recluse" and in another putting the rhetorical question, "Has the physician any right to lead the social life?" Anybody more acquainted with the duties of, or the calls upon, the physician than is evidently the case with the writer of the article would know that not to "lead the social life" is for a physician to cut himself off at once from a vast and most important field of knowledge and of observation. It is absolutely necessary for the physician in a large city to see for himself and intimately to understand that life the accompanying ills of which he is called upon to treat and to prevent. As our paragraphist himself avers, the physician should show "special evidence of discipline and self-restraint." Nowhere, we imagine, can such evidence be given proper prominence but among the very people who are to learn the lesson. The physician must be not merely

[1] Archiv für Klinische Chirurgie, Band ix., 1867-68.

in the world but to a large extent of the world, too, if he is to have that beneficial influence which the reviewer rightly places not merely on a physical, but also on a spiritual, plane. For it is a truism to assert the inseparableness of purity of body and of physical conduct from a high standard of intellectual and of spiritual existence. Yet the chief grievance that the writer seems to feel is that when he went to consult a "fashionable physician" a party was taking place at the house. On the writer's own showing it seems to us the duty of the physician to entertain his friends, if only to show how such entertainment can be carried out in a decent, moderate, hospitable, and proper spirit. There are undoubtedly persons who consider that the medical man should be a constant and unfailing and inevitably ready convenience for the rest of his fellow creatures. In the minds of such people it is almost criminal for a medical man to be prevented by indisposition from visiting his patients and it was, no doubt, one of this class who recently formulated a complaint to the board of a London hospital because his servant who went there with a trifling injury at 2 A.M. actually had to wait ten minutes before his wound was dressed. The house surgeon was in bed. A house surgeon, of course, has no right to require sleep. We commend this true story to the careful consideration of the "Saturday Reviewer," for the moral of it is applicable to his own point of view.

ARTERIO-SCLEROSIS AS A SEQUEL OF INFECTIOUS DISEASE.

ARTERIO-SCLEROSIS has been for some years suspected of developing as a sequel to infectious diseases such as typhoid fever and influenza, but exact information has been wanting as to both causal relation and frequency in different classes of cases. In the *Journal of the American Medical Association* of Sept. 10th Dr. W. S. Thayer, assistant professor of medicine at Johns Hopkins University, and Dr. C. E. Brush, physician to Johns Hopkins Hospital, give the results of a lengthy study of 4000 cases (many of which were personally seen) in the wards and at the clinic of Professor Osler in the hospital which have a bearing on the subject of arterio-sclerosis. A recent investigation suggested to the writers the desirability of investigating the sequelæ of typhoid fever as shown by the development of sclerotic changes in the arteries. 189 patients who had suffered from typhoid fever were examined and observed at periods varying from a few months to a few years after their recovery with the following results. First, the radial arteries were found to be palpable in a very large proportion of the post-typhoid cases as compared with healthy (control) cases of the same age. Thus, of patients who had had typhoid fever 48½ per cent. showed palpable radial arteries as compared with a ratio of 17 per cent. for those who had not had typhoid fever. This held for all decades of life from ten to 50 years of age and was not essentially modified in tables from which all cases giving a history of serious infections (other than typhoid fever) or alcoholic habits had been excluded. Secondly, the average blood pressure, as indicated by the Riva-Rocca manometer, was materially higher among "old typhoid" patients than among others, decade for decade, and the same applied to the size of the heart (dilatation), which was larger in the former class of cases. Thirdly, the post-mortem examination of 52 aortas in fatal cases of typhoid fever showed sclerotic changes in 30 and of these at least 21 were found to be fresh aortic endocarditis. In many of the necropsies a co-existing coronary arteritis was also noted. The rôle of infectious disease in producing arteritis both in the great and small vessels is thus considered as established. Patients of the age of 50 years and upwards were excluded from this inquiry because of the possible occurrence of early senile calcification of their arteries. A study of the total number of 4000 patients in every decade of life from the first to the fifth showed a higher degree of hardness and sclerosis of the radial arteries in cases of hard work and persons of alcoholic habits, as compared with those who did not do hard muscular work or indulge in alcohol. Of the acute specific fevers, rheumatic, typhoid, and malarial fever were, in descending order of potency, causes of arterio-sclerotic sequelæ. It was impossible to ascertain the part played by syphilis as a factor in arterio-sclerosis in the whole body of cases examined, as trustworthy histories were difficult to obtain. Heavy physical labour and alcoholic stimuli were the most potent of the non-infectious causes. "It seems to us," say Professor Thayer and Dr. Brush, "that the main etiological factor in the development of the thickening [of the intima] in arterio-sclerosis is the over-strain of the vascular walls from continued and intermittent high tension whatever its cause. ..... It is not inconceivable that the rôle of the acute infections may be rather in the production of those focal degenerations which constitute the other important element in arterio-sclerosis."

POPULUS VULT DECIPI —.

THE medical profession is ignorant of many things. It knows but little about the processes of life or of death while the etiology of many diseases is still an unsolved problem. But we were never before so painfully convinced of our ignorance about matters which seriously affect ourselves until we read the following letter which appeared in our contemporary the *Pall Mall Gazette* for Sept. 29th:—

PNEUMONIA AND THE PUBLIC.

To the Editor of the PALL MALL GAZETTE.

SIR,—In support of the statement made by "Another Physician" that medical men are struck off the register for prescribing remedies not in the Pharmacopœia, every one who has friends among the faculty must know this to be the case.

I do not wish to be disrespectful to the noble profession, but it is a fact that it is as much a trade union as any other body. To begin with, a medical man takes an oath (a copy of which I have by me) promising not to adopt any method of treatment not recognised by the legalised colleges. Also, he is not permitted to enter into consultation with any medical practitioner not of the allopathic body; though many I know are sufficiently generous to break this law by consulting with homœopaths.

A friend of mine, an M.D., recently attempted to become the medical consultant of an electric bath establishment. I was shocked to hear from him that the idea had to be given up, as he was warned by the "authorities that be" that if he attempted to carry out the project he would be brought up before the Medical Council, which means that he would have to choose between abandoning this work or being struck off the Medical Register.

I know also an instance of a young woman who is not permitted to have the satisfaction of medical attendance because she elects to follow certain simple hygienic means of treatment for a terribly large tumour from which she is suffering. One medical man did visit her, and ordered her to be operated upon immediately, which advice she refused to follow. Another medical man was then called in, who declared the operation to be unnecessary. A third medical man, hearing of his case, wrote to the patient saying that if the second medical man continued to treat her, when she died he would advise the coroner of her district and have the second medical man brought up before the Medical Council for the purpose of being struck off the register for "truckling" with the people who advised her to carry out the hygienic treatment. This occurred five or six years ago, and she is now in better health than ever she was before.

Of course, the public suffer in all this as well as the science of healing. Under such conditions the healing science cannot progress. The section of the profession, bound down by their oath and medical etiquette, tyrannises over the other who would be willing to try any reasonably proposed treatment, no matter what its source.

I am, &c.,

Sept. 25th. ANOTHER OF THE PUBLIC.

We shudder when we think how many men are in danger of the Council for having prescribed the glycerophosphates; nay, more, when we think that the General Medical Council itself should condemn its members to be struck off its own register seeing that all of them at one time or another have probably prescribed syrupus ferri phosphatis compositus. The oath about which "Another of the Public" speaks is quite new to us, but as he or she has a copy by him or her perhaps he or she will kindly send us the copy to look at. The story of the "terribly large tumour" is only one more proof of the tendency of the members of the medical profession not to let the right hand

know what the left doeth. We never before heard of any medical man so artlessly stepping into the conduct of a case with which he obviously had nothing to do as did No. 3 in the story referred to above and we wonder whether the simple hygienic treatment is the swindle run by the Viavi Company. Possibly "Another of the Public" will be good enough to supply us with "corroborative detail, intended to give artistic veri-similitude to a bald and unconvincing narrative," by sending us the names of the three practitioners concerned and of "the people who advised her to carry out the hygienic treatment;" but probably he or she will prefer not to do so.

PLAGUE IN THE RIVER TYNE.

WE understand that no further case of plague has been discovered by the medical staff of the river Tyne port sanitary authority since one of the crew of the s.s. *Bishopsgate* was removed to the floating hospital, as mentioned in THE LANCET of Oct. 1st, p. 966. The vessel was disinfected and up to the time of leaving the port the remainder of the crew were "all well." The condition of the patient is quite favourable. As he was removed to the hospital on Sept. 21st it is possible that there will be no extension of the disease.

APHASIA AND THE CEREBRAL SPEECH ZONE.

IT is now known that the cerebral zone of speech includes several centres in the cerebral cortex and that the aggregate of these covers nearly a fourth of the lateral aspect of the left cerebral hemisphere. In the *American Journal of the Medical Sciences* for September Professor Charles K. Mills of the University of Pennsylvania discusses, with the help of several illustrative specimens and clinical cases, the question of the various functions which constitute speech and the location of the various centres which coöperate in the process of speech. Five areas are enumerated—viz., the auditory centre for the perception of spoken words, which is located in the posterior three-fourths of the first and second temporal gyri; the speech-uttering centre of Broca, to which should be added, says Professor Mills, the adjacent anterior half of the insula; the "graphic" centre, which is concerned with writing and is located in the posterior part of the second frontal convolution; the visual word centre, located in the angular gyrus; and the "naming" centre, in the third temporal convolution. These five centres, adds Professor Mills, are variously connected with each other by association tracts. Clinical evidence is quoted to show that the pre-insula (anterior part of the insula) is part of the centre of speech utterance, a view supported by recent investigations of Dr. E. A. Spitzka of New York, to which reference has been made in a previous issue of THE LANCET.[1] "I believe," says Professor Mills, "that Broca's centre and the anterior part of the insula constitute conjointly the same speech centre. ..... Neither of these areas has projection fibres. Here language is organised for the use of the executive centres concerned with speech—viz., the facial, lingual, and laryngeal subcentres situated anteriorly to the foot of the fissure of Rolando. ..... In the insula and Broca's convolution, to use the idea suggested by Broadbent, language is organised into propositions." They constitute conjointly what might be termed a language arrangement area, but another area concerned with the attachment of names to concrete concepts, a "propositioning centre," occurs, adds Professor Mills, in the inferior temporal gyrus. The fissure of Rolando in the human brain is only confluent with the Sylvian fissure in extremely rare cases and the entire gyral mass which normally separates its lower end from the Sylvian fossa may be concerned with movements which pertain to articulation. The acquisition of speech is the first great step in the separation of man from animals lower in the scale. Relatively the brain of the gorilla and of the other anthropoid apes, concludes Professor Mills, shows lack of development in the region given over in man to the function (area) of speech, while in these animals the primary centres for vision, audition, and movements are largely developed. *Per contra* the speech-uttering areas have broadened and extended in man, while a new area for word-writing (graphic centre) has also developed as a sequel to, and in association with, the higher development of the speech centres.

[1] The Brains of Two Distinguished Physicians, THE LANCET, May 25th, 1901, p. 1483.

THE STANDARDISATION OF DISINFECTANTS.

NO small controversy is being centred round the question of the standardisation of disinfectants, some manufacturers urging that any attempt to bring legislative control to bear upon the subject would be impracticable and vexatious to the trade, while others maintain that the public should be efficiently protected, if possible by statute, against the sale of disinfectants which are practically worthless as such. For ourselves we welcome any addition to the statute which is calculated to secure to the public honest dealing and the supply of goods which are of the nature, substance, and quality demanded. It certainly is not honest dealing to sell as a disinfectant a preparation which has no disinfecting property at all. What else does a purchaser expect to get when he asks for a disinfectant except it be a preparation which will disinfect and which therefore he trusts to prevent the spread of infection and disease? The sale of substances as disinfectants which prove to have little or no germicidal efficiency at all is indeed a very serious matter when we come to consider the issue which hangs on the power of that substance to destroy germs. Considerable mischief might obviously be done by the false sense of security which the employment of a practically inert preparation would convey. The question doubtless presents a few difficulties as to the exact lines on which standardisation should be adopted in regard to the various kinds of preparations used for the purpose, but the real test should, of course, be based upon the power of the preparation to destroy organisms, and bacteriological schemes of examination are surely not so difficult to formulate that a standard method cannot be found and applied to the control of the sale of disinfectants. It is, at all events, only right to expect that a disinfectant preparation, having regard to its applications, should conform to a standard of bactericidal efficiency. A satisfactory and reasonable unit can surely be established.

A NEW PRISONERS' AID SOCIETY.

NO one has greater need of a friend than the man who is in fault. If he has in addition expiated his offence it seems harder to deny a claim to friendly help. The prisoner who has served his time in gaol is in this position and a question, to him of the greatest present and future significance, at once arises, How will he be received in the society of his fellow men? Upon the answer to this question much will depend, while, on the other hand, any such response must in the circumstances be a conditional one. It is in recognition of these facts and the difficulties which they entail that the Prisoners' Aid Society has become established in this country. It is founded on a principle of mutual fairness. It meets the liberated offender with a message of hospitality and a fair offer to put him in the way of employment if he will on his own part endeavour to justify such assistance by a return to industrious and honest life. The plan is at once business-like and humane. After an extended trial in the mother country, where its results have been encouraging, it has begun to take root in her colonies also,

and we understand that a movement has just been originated by Mr. E. Arnold, J.P., and others for the purpose of forming an aid society in Wellington, New Zealand. Such a project cannot fail to command the sympathy of all who have the good of their fellow men at heart. It is a matter for thankfulness that good qualities, as a rule, die hard, probably harder than moral defects. The worst men are not wholly evil and the inmates of our prisons, in spite of the strength of temptation, are often by no means the worst men. There is always ground for hope that if met in a proper spirit and helped in time they will turn over the new leaf and write on it something to their own credit and that of humanity.

THE DICTIONARY OF NATIONAL BIOGRAPHY.

IN a work planned on such a large scale as was the Dictionary of National Biography it was to be expected that certain errors would creep in. A supplement containing so far as is known all the necessary errata has been prepared for presentation to the subscribers of the dictionary and the work has been carried out by the editor at the instance of Mrs. George M. Smith. The work, it will be remembered, consists of 63 volumes ending with Zuylestein and three supplementary volumes were issued in the early autumn of 1901. Those persons who have purchased the Dictionary of National Biography since the original edition came out will find that in several cases errata mentioned in the supplement now before us have been incorporated in the text of the reprinted volumes. The corrections, of course, deal mainly with misprints, errors in dates, and other statements of fact, but certain additional information is given and naturally the errata are indispensable to everybody who already possesses a copy of this invaluable and fascinating work.

EFFECTS ON THE BLOOD PRESSURE OF THE RABBIT OF THE INJECTION OF THE BLOOD OF VARIOUS ANIMALS.

RESEARCHES on the effects of the intravenous injection of the blood of various animals into the rabbit have been made during the present year by M. G. Mioni in the University of Geneva and the results are recorded in the *Comptes Rendus de la Société de Biologie* for June. He experimented with the blood of the ox, the dog, the cat, the guinea-pig, and the rat. The blood was defibrinated. The globules were twice washed with a saline solution and after subsidence they were dissolved in double their volume of distilled water. The fluid was then reduced to an isotonic condition by the addition of the required volume of a concentrated saline solution and this extract of the globules was injected. The injection was made into the jugular vein and the pressure in the carotid artery was measured. The effects differed with the different kinds of blood and M. Mioni was able to establish the existence of three groups. In the first group, comprehending the ox, the dog, and the cat, no appreciable effect on the blood pressure was observed to be exerted by the injection of the extract of these blood globules; in the second group, including the guinea-pig and the rat, the injection was, as a rule, without effect but sometimes lowered the blood pressure; and in the third group, comprising the pig and the sheep, a well-marked depressive action was always visible. In the space of from about 45 to 50 seconds after the injection of the extract of the blood of these two animals into a rabbit it became excited, the blood pressure fell to 35-45 millimetres of mercury, and the breathing became rapid. In some instances in the course of a quarter of an hour gradual recovery to the normal state took place; in others the pressure fell still lower, the respiration became dyspnœic, and convulsions soon followed by death occurred. It was remarkable, however, that if the animal recovered from the first injection a second injection produced no appreciable effect on the blood pressure. Post-mortem examination showed that the blood of the rabbit operated on was liquid without any trace of coagulation in any part. The left heart was empty.

PROFESSOR ROBERT KOCH.

IN pursuance of an arrangement mentioned by our Berlin correspondent in THE LANCET of July 23rd, p. 258, Professor Koch has, at the beginning of October, retired from his position as director of the Berlin Institute for Infectious Diseases. It is expected that in a few months he will proceed to German East Africa for the purpose of continuing his investigations of various tropical diseases, especially those communicated to cattle by the insects known as ticks.

"THE LAST DAYS OF SPECTACLES."

UNDER the above or a similar title some of our non-medical contemporaries have lately given prominence to a statement that "Dr. Stephen Smith, ophthalmic surgeon to the Anti-Vivisection Hospital, Battersea," has discovered and has given a "public demonstration of" some method of manipulating the eyeball by which he asserts that its faults of shape can be corrected and that consequently all errors of refraction can be cured. It is somewhat difficult to imagine that any self-respecting member of the medical profession would give a "public demonstration" of the character described; but all things are possible, and before attempting to judge of Mr. Stephen Smith's alleged discovery we will wait for it to be communicated to the columns of a medical journal, to the Ophthalmological Society, or to some other suitable professional tribunal. In the meanwhile we cannot avoid pointing out that manipulation of the eyeball, under the name of "massage," has been extensively practised both in this country and on the continent for several years, and that hitherto, so far as we are aware, no suggestion that it could alter the shape of the globe, still less that it could alter it in either of the two opposite directions of making a hypermetropic eye deeper and a myopic eye less deep, has ever previously been advanced, while the accuracy of such a suggestion is, we need hardly say, in the highest degree improbable. It is much to be regretted that non-medical journals should give publicity to such statements as those which Mr. Stephen Smith is reported to have made and we cannot but think that some moral responsibility attaches to editors who suffer themselves to become the means of bringing probably unfounded or mistaken assertions prominently under the notice of ignorant people.

VAGRANCY AND SMALL-POX.

AT a meeting of the Metropolitan Asylums Board held on Oct. 1st a letter was read from the London County Council stating that the corporation of Newcastle-on-Tyne had drawn the attention of the Council to the spread of small-pox in England and Wales through the agency of vagrants and had suggested that the Council should convene a conference of the sanitary authorities of England and Wales to consider the question which, the corporation stated, had assumed such dimensions as seriously to threaten public health and morals. Copies of the report on the subject by Dr. H. E. Armstrong, the medical officer of health of Newcastle-on-Tyne, were inclosed in the report from the corporation. This report contained a summary of replies from 126 provincial medical officers of health made in answer to a circular letter on the question. From these replies it appeared that in 57 out of 111 districts, each having a population of 20,000 and upwards, which had been invaded by small-pox during the recent epidemic the disease was first introduced by vagrants and in 25 of those 57 districts the

spread of infection from vagrants occurred with varying results. In the circumstances the Council had decided to accede to the suggestion of the corporation and to convene a conference to consider the question of the agency of vagrants in the spread of infectious diseases and the preventive or remedial measures which might be adopted. The conference is to take place at the County Hall, Spring-gardens, Charing Cross, London, S.W., on Thursday, Nov. 10th, and the Council expressed the hope that the Metropolitan Asylums Board would delegate a member to attend the conference. The letter was referred to the hospitals committee with power to appoint a delegate.

BETHLEM ROYAL HOSPITAL.

THIS Royal hospital will be ready for the reception of patients on Oct. 17th. During the period of closure many important improvements have been effected—viz., a new system of drainage, more thorough precautions against fire, installations of the electric light, redecoration of the wards, and many other alterations for the benefit of the patients. Instructions for persons applying for the admission of patients are as follows—viz. :—

Persons of unsound mind presumed to be curable are eligible for admission into this hospital for maintenance and medical treatment, except—

I. Those who have sufficient means for their suitable maintenance in a private asylum.

II. Those who have been insane more than 12 months and are considered by the resident physician to be incurable.

III. Those who are in a state of idiocy, or are subject to epileptic fits, or whose condition threatens the speedy dissolution of life, or requires the permanent and exclusive attendance of a nurse.

N.B.—"A preference will be given to patients of the educated classes—to secure accommodation for whom no patient will be received who is a proper object for admission into a county lunatic asylum."

A limited number of patients are received on payment of £2 2s. per week (*only*), paid monthly in advance.

Applications should be addressed to the Resident Physician, "Bethlem Royal Hospital, London, S.E."

THE DECLINE IN THE CONSUMPTION OF LIGHT WINES.

IT is curious that when Bordeaux wines or clarets were never cheaper, more abundant, and purer than they are in the present day the public demand for them should so decidedly have diminished. The fact is that nowadays claret is not understood by the majority of people and it must be admitted that unless it is handled properly claret may easily be an unpleasant and uninteresting beverage. On the other hand, there is no finer wine—no wine of a more wholesome character or possessing more delicacy of flavour—than a light, sound, relatively non-acid claret when proper care is devoted to it. Claret is well worth while understanding but it is to be feared that many persons fail to appreciate claret because it is not potent enough and, besides, it is a delicate wine which will not keep. Many individuals prefer a rough-and-ready wine which can be reserved for future use after a portion has been used, the remainder not perceptibly changing or becoming sour. Such wines, of course, lack delicacy and are "heavy," and owing to their comparatively high alcoholic strength keep well and in a more or less drinkable condition. Economical motives presumably lead some people to select comparatively heavy wines—a little strong wine "goes further," they find, than a light delicate one. It needs very little to prove, however, that the sound light wine is more wholesome than the heavier descriptions of wine and the alcoholic allowance is more likely to be exceeded in the latter case. Sound claret, after all, contains but little free acid and, in fact, in this respect it invariably contains the least proportion of acid of all wines. Again, red Bordeaux wines are certainly less acid than white wines, while they contain practically no sugar compared with white wines. In health the individual would undoubtedly be better for drinking a pleasing light claret rather than a glass of ardent spirits and water. Good sound claret need not contain more alcohol than does ale or stout while it is free from the extractive matters of the latter. It is well known that in countries where the staple beverage is vin ordinaire the people who are content with such a simple but withal generous drink have sober inclinations, show a good bill of health, and are free from the demoralising influences of spirit-drinking. Yet in this country the same advantages may be enjoyed, so good, cheap, and abundant is the supply of light claret imported at the present time. The decline in the consumption of light wines in favour of heavy wines or the drinking of ardent spirits would appear to be evidence that a demand for more vigorous and rapidly acting stimulants has arisen and the social and moral aspects of such a demand are worth serious reflection.

THE annual meeting of the Incorporated Society of Medical Officers of Health will be held at 9, Adelphi-terrace, on Friday, Oct. 14th, at 5 P.M., when Dr. J. F. J. Sykes, medical officer of health of the metropolitan borough of St. Pancras, will deliver a presidential address upon Public Health and Architecture, illustrated by a large number of plans and drawings. The annual dinner of the society will be held the same evening at the Trocadéro Restaurant, Piccadilly-circus, London, W.

THE Odontological Society of Great Britain gives notice that it is prepared to receive applications for grants in aid of the furtherance of scientific research in connexion with dentistry. Application for particulars should be made to the honorary secretary, Scientific Research Committee, Odontological Society, 20, Hanover-square, W.

THE opening meeting of the seventy-fourth session of the Harveian Society of London will be held at 8.30 P.M. on Thursday, Oct. 13th, at the Stafford Rooms, Titchborne-street, Edgware-road, London, W. Mr. C. R. B. Keetley will deliver the Harveian lecture for the year, the subject being Plastic Surgery.

H.R.H. the Duchess of Albany will open the new operating theatre at the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, to-day (Saturday), at 3.30 P.M.

Sir Dyce Duckworth has been appointed to the vacancy in the offices of medical referee to the Treasury and medical adviser to the Pensions Commutation Board caused by the resignation of Dr. Lionel S. Beale.

THE Lettsomian Lectures of the Medical Society of London will be delivered on Feb. 6th and 20th and March 6th, 1905, by Dr. G. H. Savage, the subject being Mental Disorders.

INSTITUTE OF HYGIENE.

THE opening ceremony of the Institute of Hygiene took place at 34, Devonshire-street, London, W., on Sept. 30th. The institute has been founded to further various branches of popular teaching in hygienic matters and the first step has been the establishment of a permanent exhibition of hygienic products and appliances. This exhibition is under the charge of a registered medical man, Mr. W. G. McDowell, who is there to explain the composition, character, or properties of the various articles exhibited. In his opening address Sir JOSEPH FAYRER declared that the permanent exhibition of hygienic products and appliances would be of advantage to medical men and others in

demonstrating the progress made in the various departments of manufacture which are auxiliary to the work of the physician and surgeon. At that exhibition medical men, students, and all those interested in hygienic science could procure trustworthy information concerning foods, appliances, clothing, and everything affecting the health of the person and the home. Sir Joseph Fayrer particularly emphasised the important point that the institute would be self-supporting and it was satisfactory to know that already applications had been made for spaces to exhibit which would nearly cover the working expenses. As time progressed and the advance of scientific inquiry revealed more and more of the laws which controlled and regulated hygienic questions the collection of object-lessons would also increase and in that way the knowledge acquired by the study of the great questions concerned in the preservation of health and the prevention of disease would become more widely diffused and so form part of the common stock of knowledge of all educated persons and thus influence beneficially the domestic and social questions involved in the preservation of the public health. Preventable diseases the result of insanitary conditions killed many thousands yearly, and considering the large number of cases of illness for each death it was calculated that 78,500,000 days of labour were lost in the country annually which represented a loss of £7,750,000 per year. The knowledge that would be diffused by the Institute of Hygiene would gradually tend to mitigate such conditions and to obviate this wasteful expenditure of health and life and in so doing it would promote not only the moral but also the physical welfare of the people. Sir Joseph Fayrer concluded by asking all to give the institute their warm support in every way possible.

Dr. J. W. H. EYRE, in proposing a vote of thanks to Sir Joseph Fayrer, said that there was abundant evidence of the ability of the institute to succeed and he hoped it would carry out to the full its aims and objects.

Dr. J. STRICKLAND GOODALL of Middlesex Hospital seconded the vote of thanks which was carried with acclamation.

Sir JOSEPH FAYRER, in reply, said that knowing those who were concerned in the institute and those who were responsible for carrying on its work he was satisfied that its success and prosperity were assured.

After an inspection of the exhibits the proceedings terminated.

Obituary.

NIELS RYBERG FINSEN.

THE announcement of the death of Professor Finsen at Copenhagen on Saturday, Sept. 24th, at the early age of 43 years no doubt came as a surprise to many. Few were aware that his brilliant work had been carried on for years in a condition of chronic illness which would have paralysed the energies of most men. 20 years ago Finsen had an attack of rheumatic fever which seriously damaged the heart. For a long time the symptoms were ambiguous, hepatic enlargement and ascites being the most prominent features. Nearly five years ago, however, it was obvious to those who knew him that Finsen was a doomed man, and it was only by the frequent performance of paracentesis and the most careful regulation of his dietary and great self-denial that he was enabled to exist. In this condition he lived and laboured with a quiet heroism directing the work of the great Light Institute, the Mecca of lupus patients throughout the world.

A correspondent informs us that about a month ago Finsen returned from a visit to Rungsted, a little seaside resort in Zealand, near Copenhagen, without having derived the benefit which was hoped for from his stay there. Every time he spoke he was seized with a fit of coughing but nothing availed to break down his courage or to abate his interest in his work. Five or six days before his death he took to his bed and both he and his medical attendant, Dr. Flöystrup, recognised that the end was near. On the Saturday afternoon he sent for the staff of the hospital and took leave of them separately, pressing their hands and saying a few kind words of appreciation and thanks to each, looking the while perfectly calm and self-possessed himself. He died suddenly half an hour later, his wife and Dr. Forchammer, the head of the clinic, being with him. We are informed that the necropsy showed chronic pericarditis with calcification.

Niels Ryberg Finsen was born on Dec. 15th, 1860, at Thorshavn, the capital of the Färöe Isles. He was the son of Hannes Finsen, the governor of the islands. He passed some of his early years at school at Reykyavik in Iceland, his father being descended from an old Icelandic family. He studied at the University of Copenhagen for eight years and took his degree in medicine in 1890. In the same year he was appointed professor of anatomy in the Surgical Academy and held the appointment for three years. As a student he was only moderately successful in examinations and graduated in the second class. It is probable that this was largely owing to his attention being already specially directed to the influence of light upon living organisms, and it is said that this was caused by the observation that he found that he was able to work better in the well-lighted room of a fellow student than in his own. While holding the professorship of anatomy he was engaged in experimental work, and following the researches of Downes and Blunt on the influence of light upon bacteria and those of Widmark on the power of the actinic rays to cause inflammation of the skin he was led to a long series of investigations which demonstrated the value of light in the treatment of disease.

In 1893 he published his first essay on the red light treatment of small-pox. He argued that the blue and ultra-violet rays have an irritant action upon the vesicles of variola and that if they can be excluded many of the vesicles abort, pustulation is diminished, the secondary fever is consequently lessened, and scarring is slight and in some cases abolished. His second essay embodied a series of experiments on light as an irritant, a remarkable piece of work in which the influence of light upon animals of various classes was systematically investigated. Then came the publication of the treatise upon the treatment of lupus vulgaris by the chemical rays of light worked out in detail and showing a skilful adaptation of scientific principles to practical use in therapeutics. His next work was to render this valuable addition to the means of treating disease available for the sufferers from lupus. At first he found it difficult to obtain the necessary support, but in 1895, with the assistance of two wealthy Danes, Mr. Hagemann and Mr V. Jörgensen, he was enabled to open the first Light Institute at Copenhagen. The good work done led the State to grant a loan free of interest and the institute was resorted to by patients from all parts of the world and its removal to new and spacious premises became necessary. Over 2000 patients have been treated since the foundation. In addition to the large clinic a laboratory was established and a staff appointed to investigate the further development of phototherapy. The work done in the institute has been given to the world in a series of monographs in a special publication in Danish and German.

Finsen fortunately lived to see the success of his great work and early attracted the interest of the Royal Family of Denmark and particularly of Queen Alexandra. Her Majesty, when Princess of Wales, presented the apparatus to the London Hospital, and with the financial assistance afforded by Sir Alfred Harmsworth and others that hospital has been enabled to carry out the Finsen treatment in England, and already 450 patients have been under treatment there. Other hospitals have followed this example. Like most departures in therapeutics the light treatment was at first received with scepticism, but it has stood the test of time and every year adds to the number of patients successfully treated by its means. It has drawbacks, it is true; it is expensive and slow and is only applicable to the skin except in rare instances, but its results must always make the name of Niels Finsen honoured in the history of medicine. Finsen's personal qualities impressed all who came in contact with him. His intense devotion to his work, his constant struggle with rare courage against his physical disabilities, his modesty and total absence of self-seeking endeared him to all. When awarded the Nobel prize of 100,000 crowns (about £8000) he wished to give the whole sum to the Light Institute to carry on his great work and it was only with difficulty that his friends prevailed upon him to allow one-half to be placed at interest for the benefit of his family, the rest going to the institute.

Finsen was always a poor man. He had nothing but a small salary as the director of the institute and we are glad

PROFESSOR NIELS R. FINSEN.

to learn that the Danish Government will confer a pension upon the family. He leaves a widow and three children, one boy and two girls, the eldest eight years of age.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. W. R. Pryor, professor of the diseases of women in the New York Polyclinic.—Dr. T. Carbone, extraordinary professor of pathology in the University of Pisa, has died at Milan from the effects of Malta fever, upon the bacteriology of which he was working.

Looking Back.

FROM

THE LANCET, *SATURDAY*, OCT. 7, 1826.

Although medicine, even at an early period, was more subdivided than it is at present, the distinction between physic and surgery, does not appear in the old writers, who treat indifferently of both. The separation of surgery, which then consisted of a few mechanical processes, from physic, can only be traced to the 12th century. At a time when the perversion and abuse of religion were deluging Europe with blood, it was declared by a general council, that the church abhors the shedding of blood—*ecclesia abhorret a sanguine*. Thus the priests, who were then nearly the sole possessors of medical, as well as other learning, left to barbers the performance of bleeding and other operations. Perhaps surgery, as it then existed, cannot be said to have been degraded by the alliance, which, however, has lasted in some parts of Europe to the present day.

The progress of anatomical knowledge has been marked by a corresponding advancement of surgery: the epochs of the two sciences are the same. Their most brilliant era in this country was that of the HUNTERS, with whom POTT was coeval. The impulse which these great men gave to medical science was not adequately sustained after their death, and the subsequent progress of anatomy and physiology must be looked for in other countries. For a quarter of a century, we were nearly deprived of intercourse with the continent, and knew very little about the state of medicine in FRANCE, ITALY, and GERMANY. The national conceit, and the mean opinion of foreigners, which this insulation engendered, were encouraged and increased by those who ought to have known better. Happily the cessation of war, by allowing renewed intercourse, has led us to a juster estimate of ourselves and our neighbours. FRANCE and GERMANY have outstripped us in their establishments for medical education, and in the opportunities of acquiring every description of professional knowledge. .....

The most important period in French surgery was the establishment of the SURGICAL ACADEMY in the reign of LOUIS XV. The ability and knowledge of its members may be estimated by the five volumes of its memoirs, which are replete with valuable information. JEAN LOUIS PETIT was one of its earliest members, and a distinguished ornament of his profession. DESAULT and BICHAT have successively flourished since, and claim our highest respect. The career of the latter, although short, was brilliant; he displayed such a combination of mental energy and activity, of original genius and patient industry, that his early death must be regarded as the greatest loss which medical science has sustained in modern times. His work on the membranes, his treatise on life and death, and his general anatomy, which astonish us as the productions of one who died at the age of thirty, were only the precursors of a great design which he had conceived of remodelling the science of medicine.

The reputation of the French in medical science is still amply sustained by a long list of living individuals, whose talents and zeal are gratefully recognised by those who have benefited from their instructions. I cannot help mentioning the gratification I have derived from the admirable anatomical work of M. JULES CLOQUET, the *Manuel d'Anatomie*, now in course of publication, and I strongly recommend it to your notice. All parts of medical science are indeed cultivated by our ingenious neighbours with great zeal, and an apparently disinterested love of knowledge. They excel as anatomists and physiologists; they are close observers of nature, and have investigated very attentively the changes produced in the animal organs by disease. Their knowledge is systematic and well arranged, and their elementary works excellent.[1]

THE MIDWIVES ACT, 1902.

THE members of the Central Midwives Board met on Sept. 29th at 6, Suffolk-street, S.W., Mr. E. P. YOUNG being in the chair.

A letter was read from a medical practitioner in the provinces complaining of the conduct of a registered midwife to whom he had written that it had come to his knowledge that she was interfering with his treatment of a child under his care and that if she continued to interfere he would take legal action. The midwife replied, "You can take legal proceedings whenever you like. It is much like your 'impotence' (*sic*) to write to me, so please to mind your own business if you know how." The SECRETARY of the Central Midwives Board explained that he had written to the local supervising authority concerned asking for a report in accordance with Section 8 of the Midwives Act, 1902, but he had only received a formal acknowledgment of the receipt of his letter and he was still waiting for the report. The Board decided to postpone the consideration of the matter until the report from the local supervising authority had been received.

A letter was read from the secretary of the London Obstetrical Society informing the Board that after considering the case of a certain certified midwife the council had resolved that her London Obstetrical Society certificate should be forfeited. The Board decided that evidence should be demanded in support of the charges against the midwife concerned.

A letter from the medical superintendent of the Brentford Union Infirmary was read asking the opinion of the Board as to the best position for the building of new lying-in wards. The letter asked if it were likely that the educational value of the new lying-in wards was likely to be affected by their being placed in the portion of the Brentford Union known as the workhouse or in the portion known as the infirmary.

Dr. W. J. SINCLAIR deprecated the Board taking any action by which it assumed any responsibility. The question, he said, had absolutely nothing to do with the Board.

The CHAIRMAN insisted on the necessity of careful consideration before the Board took up the position of architect.

Miss J. WILSON moved:—

That the medical superintendent of the Brentford Union Infirmary be recommended to inspect the lying-in wards of Kensington Infirmary.

This was seconded by Miss D. OLDHAM and carried by the votes of these two ladies against that of Dr. SINCLAIR, who entered a strong protest against the Board assuming functions for which it was never intended.

A letter from the Town Clerk of Poplar, urging the Board to promote legislation to empower local supervising authorities to grant compensation to midwives suspended from practice under Section 8 of the Midwives Act, was then considered.

Dr. SINCLAIR said that the Board had nothing to do with any question of compensation. The duty of the Board was confined to administering the Midwives Act. The duty of deciding on questions of compensation must rest with the courts of justice and it was absurd and illogical for the Central Midwives Board to discuss the subject. The county councils and other authorities concerned could take up the matter from the point of view of promoting further legislation. He thought that some important municipalities would take it up, and as they had an enormous political force behind them many members of Parliament would be persuaded to interest themselves in the movement.

On the motion of Miss WILSON, seconded by Miss R. PAGET and carried, it was resolved that the secretary of the Central Midwives Board should be asked to take note of the suggestion about compensation. Dr. Sinclair's name was at his request entered on the minutes of the Board as objecting to this resolution.

The consideration of a letter raising the question whether

[1] Excerpts from "The Introductory Lecture to a Course of Surgery, delivered by Mr. Lawrence, at the New Medical Theatre, Aldersgate-street."

certified midwives who only attended cases with medical men ought to notify their intention to practise was postponed.

After the SECRETARY had read the financial statement, Dr. SINCLAIR urged that in future the accounts should be made up seven days before the meeting of the Board and then printed and sent out with the agenda. Dr. Sinclair pointed out that it was difficult to discuss adequately figures read at the meeting.

At the request of the CHAIRMAN the SECRETARY then read Rule 18 regulating the proceedings of the Board as follows:—

At every ordinary meeting of the Board the secretary shall present a statement in writing showing the receipts and expenditure of the Board, including balances brought forward since the last ordinary meeting, and showing the existing balance, if any, to the credit of the Board and the existing liabilities.

Miss WILSON suggested that the Board should wait for the attendance of Mr. J. H. Johnstone.

Dr. SINCLAIR did not think it should be thought that the Board must wait for the attendance of Mr. J. H. Johnstone before deciding on such a common-sense matter.

After some discussion the CHAIRMAN ruled that the method followed by the secretary was according to the regulations.

The Board adjourned to Oct. 27th.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8401 births and 4571 deaths were registered during the week ending Oct. 1st. The annual rate of mortality in these towns, which had been 17·5, 17·0, and 16·0 per 1000 in the three preceding weeks, further declined last week to 15·6 per 1000. In London the death-rate was 14·3 per 1000, while it averaged 16·2 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 6·4 in Hornsey, 7·5 in King's Norton, 7·9 in Willesden, 8·6 in Smethwick, 8·7 in Handsworth (Staffs.), 9·4 in Leyton, and 9·6 in Reading; while the highest rates were 21·0 in Stockton-on-Tees, 22·1 in Salford, 22·6 in Liverpool and in West Hartlepool, 23·3 in Blackburn, 23·5 in Sunderland, 23·6 in Blackburn, 25·7 in Wigan, and 26·5 in St. Helens. The 4571 deaths in these towns last week included 837 which were referred to the principal infectious diseases, against 1512, 1192, and 971 in the three preceding weeks; of these 837 deaths, 568 resulted from diarrhœa, 72 from diphtheria, 66 from measles, 45 from whooping-cough, 43 from scarlet fever, 42 from "fever" (principally enteric), and one from small-pox. No death from any of these diseases occurred last week in Hornsey or in Handsworth (Staffs); in the other towns they caused the lowest death-rates in Bournemouth, Devonport, King's Norton, and Aston Manor; and the highest rates in Liverpool, Warrington, Bolton, Salford, Burnley, Blackburn, Preston, Hull, Stockton-on-Tees, and Sunderland. The greatest proportional mortality from measles occurred in Grimsby, Liverpool, and Tynemouth; from scarlet fever in Northampton and Huddersfield; from diphtheria in Portsmouth, Salford, Huddersfield, Stockton-on-Tees, and Swansea; and from diarrhœa in Warrington, Bolton, Burnley, Blackburn, Preston, Stockton-on-Tees, and Sunderland. The mortality from whooping-cough and from "fever" showed no marked excess in any of the large towns. One fatal case of small-pox was registered in Gateshead but none in any other of the large towns. The number of small-pox patients in the Metropolitan Asylums hospitals, which had been five at the end of each of the two preceding weeks, had declined to three at the end of last week; no new cases were admitted during the week, against two, one, and none in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday last, Oct. 1st, was 2158, against 1816, 1929, and 1969 on the three preceding Saturdays; 406 new cases were admitted during the week, against 234, 340, and 284 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 129, 141, and 169 in the three preceding weeks, declined again last week to 167, but were five above the average number in the corresponding period of the preceding year. The causes of 45, or 1·0 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Salford, Newcastle-on-Tyne, and in 45 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Bootle, St. Helens, Blackburn, Preston, Halifax, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·7, 16·5, and 16·0 per 1000 in the three preceding weeks, rose again to 16·6 per 1000 during the week ending Oct. 1st, and was 1·0 per 1000 in excess of the mean rate during the same period in the 76 large English towns. Among these Scotch towns the death-rates ranged from 13·6 in Paisley and 14·8 in Edinburgh to 20·0 in Perth and 26·2 in Greenock. The 550 deaths in these towns included 58 which were referred to diarrhœa, 23 to whooping-cough, 11 to "fever," four to scarlet fever, four to diphtheria, and one to measles. In all, 101 deaths resulted from these principal infectious diseases last week, against 86, 103, and 87 in the three preceding weeks. These 101 deaths were equal to an annual rate of 3·1 per 1000, which was 0·2 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 52, 69, and 60 in the three preceding weeks, further declined last week to 58, of which 28 were registered in Glasgow, nine in Edinburgh, nine in Dundee, four in Aberdeen, four in Leith, and three in Paisley. The deaths from whooping-cough, which had been 17, 13, and 17 in the three preceding weeks, further rose to 23 last week, and included 15 in Glasgow and five in Edinburgh. The fatal cases of "fever," which had been five, eight, and three in the three preceding weeks, increased again last week to 11, of which seven occurred in Greenock and three in Glasgow. The deaths from scarlet fever, which had been two, two, and three in the three preceding weeks, further rose to four last week, and included three in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 58, 55, and 66 in the three preceding weeks, further rose to 75 last week, but were 13 below the number in the corresponding period of last year. The causes of 12, or more than 2 per cent., of the deaths registered in these eight towns were not certified.

HEALTH OF DUBLIN.

The annual death-rate, which had been 20·8, 16·8, and 25·9 per 1000 in the three preceding weeks, declined again to 19·0 per 1000 during the week ending Oct. 1st. During the 13 weeks of the quarter ending on that date the death-rate averaged 20·7 per 1000, the rates during the same period being 16·4 in London and 14·7 in Edinburgh. The 138 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 50 from the number in the preceding week and included 19 which were referred to the principal infectious diseases, against 32, 17, and 34 in the three preceding weeks; of these, 16 resulted from diarrhœa, two from "fever," and one from whooping-cough, but not any from small-pox, measles, scarlet fever, or diphtheria. These 19 deaths were equal to an annual rate of 2·2 per 1000, the death-rates last week from the principal infectious diseases being 1·6 in London and 2·4 in Edinburgh. The fatal cases of diarrhœa, which had been 26, 14, and 28 in the three preceding weeks, declined again last week to 16. The 138 deaths in Dublin last week included 37 among children under one year of age and 27 among persons aged 60 years and upwards; the deaths both of infants and of elderly persons showed a marked decline from the respective numbers recorded in the preceding week. Eight inquest cases and five deaths from violence were registered, and 50, or more than a third, of the deaths occurred in public institutions. The causes of five, or nearly 4 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING AUGUST, 1904.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1904.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1904.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	**4,648,950**	**4**	**1188**	**704**	**—**	**247**	**1**	**26**	**507**	**1**	**2678**	**6·0**	**2**	**154**	**31**	**53**	**104**	**—**	**30**	**—**	**2752**	**3126**	**7·0**	**8494**	**19·1**	**313**
West Districts.																										
Paddington	146,975	—	28	14	—	6	—	1	7	—	56	4·0	—	—	1	—	1	—	2	—	71	75	5·3	206	14·6	288
Kensington	179,236	—	20	17	—	3	—	1	12	1	54	3·1	—	1	—	1	2	—	1	—	77	82	4·8	262	15·2	332
Hammersmith	117,412	—	25	17	—	5	—	3	21	—	71	6·3	—	1	1	—	9	—	1	—	70	82	7·3	228	20·3	379
Fulham	152,482	—	19	20	—	5	—	1	21	—	66	4·5	—	1	—	2	7	—	—	—	130	140	9·6	313	21·4	372
Chelsea	74,329	—	4	3	—	2	—	1	6	—	16	2·2	—	—	—	1	5	—	—	—	25	31	4·3	120	16·8	277
City of Westminster	177,321	—	27	12	—	3	—	—	13	—	55	3·2	—	2	1	—	1	—	1	—	37	42	2·5	216	12·7	218
North Districts.																										
St. Marylebone	130,337	—	35	8	—	9	—	—	21	—	73	5·9	—	2	—	1	1	—	—	—	56	60	4·8	208	16·6	198
Hampstead	86,663	—	11	8	—	6	—	—	2	—	27	3·2	—	—	—	1	—	—	1	—	8	10	1·2	79	9·5	160
St. Pancras	235,936	—	101	27	—	28	—	1	35	—	192	8·5	—	10	5	—	5	—	3	—	124	147	6·5	459	20·3	362
Islington	341,044	—	117	32	—	18	—	2	27	—	196	6·0	—	21	5	2	7	—	—	—	160	196	6·0	551	16·8	278
Stoke Newington	52,445	—	17	7	—	4	—	2	7	—	37	7·4	—	—	—	2	1	—	—	—	20	23	4·6	71	14·1	245
Hackney	226,266	1	78	54	—	26	—	1	27	—	187	8·6	—	5	—	6	2	—	3	—	165	181	8·3	417	19·2	352
Central Districts.																										
Holborn	57,161	—	12	2	—	3	—	—	10	—	27	4·9	—	5	—	1	2	—	1	—	24	33	6·0	87	15·9	165
Finsbury	98,958	—	28	16	—	6	—	—	17	—	67	7·1	—	5	2	1	—	—	1	—	69	78	8·2	252	26·6	297
City of London	23,482	—	5	3	—	1	—	—	2	—	11	4·9	—	—	—	—	1	—	—	—	2	3	1·3	35	15·6	125
East Districts.																										
Shoreditch	117,033	—	25	21	—	7	—	—	14	—	67	6·0	2	14	1	1	3	—	1	—	99	121	10·8	313	27·9	416
Bethnal Green	130,207	—	70	41	—	6	—	1	24	—	142	11·4	—	5	1	2	4	—	1	—	94	107	8·6	283	22·7	315
Stepney	303,791	1	130	119	—	26	—	—	71	—	347	11·9	—	10	4	11	6	—	2	—	201	234	8·0	650	22·3	318
Poplar	169,905	—	47	81	—	11	—	1	13	—	153	9·4	—	11	2	2	8	—	2	—	150	175	10·7	284	23·6	340
South Districts.																										
Southwark	207,937	—	51	31	—	7	—	—	25	—	114	5·7	—	8	—	3	8	—	—	—	163	182	9·1	489	24·5	366
Bermondsey	129,397	—	24	18	—	8	—	—	21	—	71	5·7	—	6	2	2	2	—	3	—	117	132	10·6	297	23·9	337
Lambeth	310,359	—	43	25	—	14	—	3	22	—	107	3·6	—	16	1	3	15	—	—	—	172	207	7·0	546	18·3	282
Battersea	175,465	—	37	19	—	5	—	1	10	—	72	4·3	—	5	—	—	2	—	2	—	115	124	7·4	321	19·1	337
Wandsworth	257,448	—	43	25	—	5	—	—	19	—	92	3·7	—	7	1	2	1	—	—	—	148	159	6·4	420	17·0	300
Camberwell	268,384	1	58	16	—	15	1	4	32	—	127	4·9	—	7	1	1	5	—	3	—	165	182	7·1	470	18·3	320
Deptford	113,509	—	43	19	—	5	—	2	14	—	83	7·6	—	2	—	—	1	—	—	—	80	83	7·6	220	20·2	347
Greenwich	101,651	—	13	20	—	6	—	1	4	—	44	4·5	—	6	—	—	3	—	2	—	64	75	7·7	187	19·2	319
Lewisham	140,401	—	28	11	—	2	—	—	5	—	46	3·4	—	3	2	—	1	—	—	—	61	67	5·0	194	14·4	296
Woolwich	123,416	—	49	18	—	3	—	—	5	—	75	6·3	—	1	1	8	1	—	—	—	85	96	8·1	216	18·3	314
Port of London	—	1	—	—	—	2	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Including membranous croup

was equal to an annual rate of 6·0 per 1000 of the population, estimated at 4,648,950 persons in the middle of the year. In the three preceding months the rates had been 5·9, 5·4, and 6·1 per 1000. The rates were considerably below the average in Kensington, Chelsea, the City of Westminster, Hampstead, Lambeth, Wandsworth, and Lewisham; while they showed the largest excess in St. Pancras, Hackney, Bethnal Green, Stepney, Poplar, and Deptford. The notified cases of small-pox, which had been 87, 60, and 32 in the three preceding months, further declined to four, and included one each in Hackney, Stepney, Camberwell, and the district of the sanitary authority for the Port of London. The Metropolitan Asylums hospitals contained six small-pox patients at the end of August, against 118, 74, and 46 at the end of the three preceding months; the weekly admissions averaged one, against 23, 13, and eight in the three preceding months. Scarlet fever was slightly less prevalent during the month under notice than it had been during the preceding month; this disease was proportionally most prevalent in St. Pancras, Bethnal Green, Stepney, Deptford, and Woolwich. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1632, 1599, and 1764 at the end of the three preceding months, had risen again to 1801 at the end of August; the weekly admissions averaged 214, against 219, 206, and 214 in the three preceding months. The prevalence of diphtheria showed a considerable increase over that recorded in the preceding month; among the various metropolitan boroughs diphtheria was proportionally most prevalent in Hackney, Bethnal Green, Stepney, Poplar, and Greenwich. The Metropolitan Asylums hospitals contained 818 diphtheria patients at the end of August, against 755, 681, and 763 at the end of the three preceding months; the weekly admissions averaged 119, against 113, 95, and 124 in the three preceding months. Enteric fever was more prevalent than in any previous month during the year; this disease showed the greatest proportional prevalence in St. Pancras, Hackney, Stoke Newington, Stepney, and Poplar. The number of enteric fever patients in the Metropolitan Asylums hospitals, which had been 51, 62, and 67 at the end of the three preceding months, had increased to 135 at the end of August; the weekly admissions averaged 29, against ten, 12, and 15 in the three preceding months. Erysipelas was proportionately most prevalent in Hammersmith, St. Marylebone, Holborn, Finsbury, Bethnal Green, Stepney, and Poplar. The 26 cases of puerperal fever notified during the month included four in Camberwell, three in Hammersmith, three in Lambeth, and two each in Islington, Stoke Newington, and Deptford.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various metropolitan boroughs, the deaths occurring in public institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the five weeks ending Sept. 3rd the deaths of 8494 persons belonging to London were registered, equal to an annual rate of 19·1 per 1000; in the three preceding months the rates had been 13·9, 12·5, and 13·6 per 1000 respectively. The lowest death-rates in London during the month under notice were 9·5 in Hampstead, 12·7 in the City of Westminster, 14·1 in Stoke Newington, 14·4 in Lewisham, 14·6 in Paddington, 15·2 in Kensington, 15·6 in the City of London, and 15·9 in Holborn; the highest rates were 22·3 in Stepney, 22·7 in Bethnal Green, 23·6 in Poplar, 23·9 in Bermondsey, 24·5 in Southwark, 26·6 in Finsbury, and 27·9 in Shoreditch. The 8494 deaths from all causes included 3126 which were referred to the principal infectious diseases; of these, two resulted from small-pox, 154 from measles, 31 from scarlet fever, 53 from diphtheria, 104 from whooping-cough, 30 from enteric fever, and 2752 from diarrhœa. The lowest death-rates from these diseases were recorded in Kensington, Chelsea, the City of Westminster, St. Marylebone, Hampstead, Stoke Newington, and the City of London; and the highest rates in Fulham, Shoreditch, Poplar, Southwark, Bermondsey, and Bethnal Green. The two fatal cases of small-pox both belonged to Shoreditch. The 154 deaths from measles were 17 below the average; among the various metropolitan boroughs this disease was proportionately most fatal in Islington, Holborn, Shoreditch, Poplar, and Greenwich. The 31 fatal cases of scarlet fever were less than one-half of the average number in the corresponding periods of the ten preceding years; the highest proportional mortality from this disease was recorded in St. Pancras, Islington, Finsbury, Stepney, Poplar, Bermondsey, and Lewisham. The deaths from diphtheria numbered 53, the corrected average number being 162; among the various metropolitan boroughs this disease was proportionately most fatal in Stoke Newington, Hackney, Holborn, Stepney, and Woolwich. The 104 fatal cases of whooping-cough showed a decline of 38 from the average number in the corresponding periods of the ten preceding years; the highest proportional mortality from this disease occurred in Hammersmith, Fulham, Chelsea, Poplar, and Lambeth. The 30 deaths referred to enteric fever were 27 fewer than the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Paddington, St. Pancras, Hackney, Holborn, Bermondsey, and Greenwich. The 2752 deaths from diarrhœa were 1240 in excess of the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease was recorded in Fulham, Hackney, Shoreditch, Poplar, Southwark, Bermondsey, and Deptford. In conclusion, it may be stated that the aggregate mortality from these principal infectious diseases was nearly 49 per cent. above the average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 313 per 1000. The lowest rates of infant mortality were recorded in the City of Westminster, St. Marylebone, Hampstead, Stoke Newington, Holborn, and the City of London; and the highest rates in Hammersmith, Fulham, St. Pancras, Hackney, Shoreditch, and Southwark.

THE SERVICES.

ROYAL NAVAL VOLUNTEER RESERVE.

THE undermentioned has been appointed Surgeon:—Elliot Wilson Woodbridge (dated Sept. 27th, 1904).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. T. Johnston, Acting Principal Medical Officer at Belfast, is ordered to Canterbury to take up duty there. Major E. McK. Williams is posted to the Home District for duty. Major H. A. Cummins, C.M.G., is held in readiness for service in India.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Glasgow Companies: The undermentioned Lieutenants to be Captains:—G. H. Edington (dated Oct. 5th, 1904), M. Dunning (dated Oct. 5th, 1904), S. M. Sloan (dated Oct. 5th, 1904), H. W. Thomson (dated Oct. 5th, 1904), A. Young (dated Oct. 5th, 1904), and F. J. Charteris (dated Oct. 5th, 1904). The London Companies: The resignation of Major T. H. Openshaw, C.M.G., which was announced in the *London Gazette* of Sept. 2nd, 1904, is cancelled. Devon Bearer Company: Captain H. W. Webber resigns his commission (dated Oct. 5th, 1904).

ACCIDENT TO SURGEON-GENERAL J. A. CLERY.

A serious accident occurred to Surgeon-General J. A. Clery, C.B., A.M.S., medical officer of the 2nd Army Corps, belonging to the headquarters staff at Salisbury, who, in company with Colonel Heath, was returning home from a cycle ride in the neighbourhood of Salisbury on Sept. 26th. When nearing home he was thrown from his bicycle and run over by a motor-car. Assistance was at once rendered and Surgeon-General Clery was conveyed home by motor-car, when it was found that he had sustained a fracture of three ribs and some scalp wounds; it is also feared that the spine has received some injury.

DEATHS IN THE SERVICES.

Brigade-Surgeon William Ashton, A.M.S. (retired), recently, at his residence, Marlborough Lawn, Cheltenham, in his seventieth year. He entered the medical service of the army in 1857 and served in the Indian Mutiny campaign of 1858–9 and was present with the 79th Highlanders at the storming and capture of Rampole Cassie and the passage of the Gogra at Fyzabad, and with the 53rd Regiment at the action of Toolsepore (Indian medal). He retired from the army in 1888.

Brigade-Surgeon Edwin Wilson, A.M.D. (retired), suddenly on Sept. 27th, aged 78 years. He became assistant surgeon in 1855 and reached the rank of surgeon in 1868, surgeon-major in 1873, and retired in 1884 with the honorary rank of brigade-surgeon. He served in the 71st Highlanders with the Central India Field Force under Sir Hugh Rose in

1858 and was present at the battles of Koonch and Golowlee, the capture of Calpee, the action of Morar, and the recapture of Gwalior. He was also in medical charge of the flying column which was sent in pursuit of Burgore Sing (medal with clasp).

Surgeon Henry Edward Raper, R.N., at the Royal Naval Hospital, Malta, on Sept. 27th, from Mediterranean fever, aged 30 years. He joined the Medical Service of the Royal Navy in 1898 and has served in the *Vulcan* since 1901.

THE VOLUNTEER REGULATIONS.

A new addition of the Volunteer Regulations has been published in which there are several changes affecting Volunteer medical officers. A step of honorary rank has been authorised for medical officers who have completed 20 years' service; time spent on active service counts double towards this. A new examination has been added for surgeon-captains and captains, R.A.M.C.V., before promotion to surgeon-major. Officers who served in South Africa as surgeon-captains or captains are exempt from this examination. Forage allowance is now granted to mounted officers in camp. In the Regulars staff uniform has been abolished for all officers below the rank of colonel and accordingly in future senior medical officers of Volunteer infantry brigades will wear regimental uniform but the present staff dress may be worn out. The formation of brigade bearer companies has been suspended for the present.

A SANITARY DEPARTMENT FOR INDIA.

An important resolution of the Government of India has been published announcing the formation of a separate sanitary department for India with a central laboratory at headquarters and a provincial laboratory in each of the larger provinces.

THE WAR IN THE FAR EAST.

Whether the absence of news from the belligerent forces in the field in Manchuria is to be taken as an indication that a forward movement on the part of the Japanese armies is taking place or about to take place and that consequently the censorship is again in full operation we know not, but there has been a suspension of all news from this direction. As regards Port Arthur matters apparently remain much as they were. Despite fierce and repeated attacks on the part of the besiegers the fortress has not fallen.

The Russian forces actually in the field are officially reported to be healthy and General Kuropatkin, writing to the Ministry of War, has spoken in highly eulogistic terms of the Russian commissariat service for the way in which its officials have supplied his army with provisions amid a host of difficulties of all kinds. All the troops, we are told, have nearly always been supplied with bread prepared in portable field kitchens; this explains the fact that the army has not had to suffer from dysentery, in spite of the execrable climatic conditions. The men of the supply corps follow the troops up to the very outposts. It is needless to point out how absolutely dependent an army in the field must be upon its food-supply and if the Russian commissariat have been able to fulfil their part in this respect under the extremely difficult circumstances which have arisen in this campaign it most deservedly merits the highest possible credit. On the other hand, we fear that the Japanese armies, whose food mainly consists of rice, which is insufficiently nourishing for soldiers in the field in a cold-weather campaign, have frequently had to march and to fight in advance of their food-supplies. There is but little doubt, as we have previously stated, that beri-beri is a prevalent complaint among the Japanese soldiers and that it is so in the Manchurian army now.

According to unofficial but fairly trustworthy estimates the number of sick and wounded soldiers under treatment in Japan towards the end of last month may be taken as about 45,000. The military hospitals in Tokio, Osaka, and Hiroshima contain 10,000 patients each. 9000 have sufficiently recovered to be sent to the mountain health resorts. The system of handling and treating the sick and wounded is working satisfactorily and the death-rate is declared to be exceptionally small.

The total casualties on both sides since the battles of Yalu and Kinchow—that is, in the past five months and exclusive of the operations at Port Arthur—have been estimated by a special war correspondent of the *Standard* as amounting to 125,000, counting all the killed, sick, wounded, and missing. The sick and missing on the Russian side, according to this calculation, are reckoned as 30,000, whereas they are taken as only 10,000 on the Japanese side, which can scarcely be the case. The truth is that all such estimates are untrustworthy. It is comparatively easy, however, to count the number of patients present in war hospitals.

At Mukden there is a good deal of distress prevalent. The Scottish Mission, with a hospital under the care of Mr. D. Christie, is doing good work in that neighbourhood among the refugees. It supports 500 of these in the mission compounds and about 100 receive surgical treatment daily. About 5000 were recently stated to have been relieved in the course of three days. The weather is reported to be cold and windy, the cold having prematurely set in, and strenuous efforts are being made on both sides to supply the troops with warm clothing. Both sides have also been hurrying up reinforcements for the coming battle and especially on the part of the Russians, who have managed to carry out some increased railway facilities for the purpose and for the transport of stores. Everything, it must be confessed, points at the present time to a more or less prolonged war.

The *Times* military correspondent in an article on the war says: "The Russian Red Cross Society is a body possessing large resources and great influence in high quarters. Up to July 15th it had sent 138 hospitals to the front, with 15,000 beds, 400 doctors, 1750 attendants, and 800 sisters of mercy. Many of the best Russian families have sent one member or more to aid in this beneficent and charitable work; in addition various officials on leave have spent weeks at the seat of war."

Correspondence.

"Audi alteram partem."

SOME POINTS IN THE PREVENTION OF EPIDEMIC DIARRHŒA.

To the Editors of THE LANCET.

SIRS,—I reply with pleasure to "Practitioner's" query in THE LANCET of Oct. 1st, p. 981. Before doing so I must state plainly (what I had hoped was already sufficiently clear in my last contribution to your columns) that of course I do not attribute every case of diarrhœa to infection by dust or flies. It is also important to bear in mind the distinction between diarrhœa as a symptom and epidemic or zymotic diarrhœa as an infectious disease. A study of the returns of deaths from diarrhœa in London shows that, generally speaking, from December to June there is a rough average of 12 deaths a week in London from diarrhœa. There can be but little doubt that the majority of these deaths (which, of course, represent a much larger number of cases) during the winter and spring months arise independently of fly or dust infection. We might, I think, legitimately term this the normal amount of diarrhœa in London due to other causes than flies or dust. It is obvious, therefore, that at least an equal number of cases during the summer months is equally independent of these infective agents.

"Practitioner" asks "if I can explain" why so many "breast-fed infants are suffering from diarrhœa now." I assume he means zymotic or epidemic diarrhœa. Perhaps I can best reply by asking questions. 1. Are these cases *wholly* breast-fed or is the breast supply supplemented by one or more meals of other food in some cases? 2. Are the instructions as to cleansing of nipples before and after each feeding scrupulously carried out? 3. Do the instructions extend to cleanliness of the mother's hands and finger nails? (The nipple is frequently held by the mother to assist the infant in feeding.) 4. Are "dummy" teats absolutely forbidden? Many breast-fed infants are given these abominations to keep them quiet between times. These often fall on the dusty pavements outside or on the germ-laden carpet indoors and (as I have seen) are often replaced in the infant's mouth without even a pretence at wiping, or if an attempt is made, the teat is usually rubbed on the mother's skirt or bodice, which cannot improve matters, for these garments are obviously liable to pollution in various ways, including pollution by the infant himself. 5. Are flies prevented from settling on the infant's lips when asleep? Germ-laden flies may thus directly deposit diarrhœa-causing organisms at the portal to the alimentary system. 6. Are any of these infants allowed to crawl about the floor? If so, how easily diarrhœa-causing organisms, brought in by boots, &c., may be carried to the mouth.

In all these ways (and no doubt many others) diarrhœa-causing organisms may be introduced into the alimentary systems of even wholly breast-fed infants, and I venture to think (after excluding cases arising from dietary errors or drugs through the mother) that such methods of infection probably account for most of the cases of diarrhœa occurring among wholly breast-fed infants. One point is clear from careful investigation into numerous deaths from infantile diarrhœa in many towns—viz., the incidence of fatal diarrhœa among wholly breast-fed infants is almost a negligible quantity, as compared with the enormous death-roll from this disease among bottle-fed infants. Thus in my own district 63 cases of diarrhœa occurred among infants under two years of age during August, 1904. Only one of these 63 cases was in a wholly breast-fed infant and in this instance the standard of home hygiene was by no means satisfactory.

I have calculated from various data which I have collected from the reports of other medical officers of health that the normal average death-rates of infants under 12 months of age in large urban districts may be stated as follows:—

	Death-rates per 1000 births—	
	From all causes.	From diarrhœa.
Breast-fed infants	85	18
Infants fed wholly or partly on artificial milks	140	92
Infants fed wholly or partly on cow's milk	178	118

I have assumed as approximately correct in making these calculations that 60 per cent. of infants are breast-fed; 20 per cent. are fed wholly or partly on cow's milk; and 20 per cent. on artificial milks.

Epidemic diarrhœa is a disease of a fulminating type revealing in its characters the results of an infective process of a massive nature. Professor S. Delépine thinks that the massive infection of milk takes place chiefly through careless methods of milking at the cowsheds. No doubt many cases are due to primary infection in this manner. But whether such primary pollution is present or not I maintain that an increasing amount of pollution of a dangerous nature is continuously occurring at the farms, in the dairy, and even in the home of the consumer through the agency of dirt-carrying flies. In warm weather such pollution is rendered incredibly massive by the very rapid multiplication of bacteria in milk, whether introduced by dirty cows, dirty milkers, dirty flies, dust, or all combined. In any case I have observed that when flies are fewer in numbers then also the diarrhœa deaths diminish and *vice versâ*.

In investigating the etiological factors in epidemic diarrhœa the following points demand consideration. 1. During a hot dry summer various parts of a large town are obviously subject to almost the same influences of solar heat, ground temperature, and other climatic conditions (excepting towns situated partly on hills and partly in valleys). The same milk vendors supply mixed milk from the same sources to rich and poor districts alike and grocers supply the same brands of condensed milk in all parts of the town. Although, then, there may be no appreciable difference either as regards meteorological conditions or food supplies, yet the infantile mortality from diarrhœa during the hot months will be found to be more severe in certain parts of the town as compared with others. It will be found that the affected districts are those which surround or are in the proximity of organic matter, such as refuse tips, midden privies, stables, rag and bone stores, slaughter-house, &c. Why? 2. Under similar climatic conditions and food-supplies one poor part of a town compares favourably with another equally poor subdistrict. Why? 3. If from the death returns for London for many years past the diarrhœa mortality be studied through the weeks and months of the year and a curve constructed, it will be found that the diarrhœa curve maintains a fairly dead-level or low-water mark of an average of 12 deaths a week from December to the beginning of June; in the third week of June the number of deaths from diarrhœa has multiplied about four times, or an average of 50 deaths a week. Thereafter the curve rises very rapidly week by week, so that the weekly mortality has multiplied eight times by the first week in July, while by the third week in July the average number of deaths from diarrhœa is no less than 16 times the average weekly number of deaths from diarrhœa from December to June. The diarrhœa curve remains at this high level or high-water mark until August is well advanced when it gradually begins to fall, so that by the end of August the weekly number of deaths is about 13 times as many as from December to June. Thereafter the fall in the curve is rather more rapid, the number of deaths from diarrhœa during the middle week of September being now only eight times the multiple of the December to June average, dropping to half this number by the beginning of October. As the rise in the curve began gradually so it ends, reaching low-water mark of about 12 deaths a week towards the end of November.

The diarrhœa curve for London thus demonstrates that epidemic diarrhœa begins gradually in June, rapidly rises to a zenith in July and August, remains at a high level until near the middle of September (with, however, a tendency to decline after the third week in August, this tendency becoming more pronounced during the latter half of September and beginning of October), thereafter finishing by lysis towards the end of November. Why is this? It is necessary to study each problem and series of facts more closely. 1. As regards proximity to organic refuse, midden privies, &c., these conditions obtain all the year round; moreover, dry and dusty weather often occurs in March without materially affecting the infantile mortality from diarrhœa in this month. It is not until flies begin to come in and gradually increase in numbers that the diarrhœa curve begins to rise, at first gradually, then more rapidly, and so forth. 2. As regards one poor district comparing favourably with another during the same season, it will generally be found that the district more severely affected also suffers from a greater abundance of flies and the proximity of larger quantities and more offensive organic material. Such circumstances are favourable to the breeding of large numbers of flies and of each fly bearing a considerable quota of filth to food. 3. As regards the gradual rise in the diarrhœa mortality, at first in June, then the rapid ascent in July, the high level maintained through the greater part of August, the gradual fall at the beginning of September, the rapid fall towards the end of September, the final slow decline to the end of November, does it not correspond closely with the actual fly season? Seen in small numbers in June, gradually increasing in force until they come in with a rapid rush in July in large numbers, voracious to a degree until sexually mature, towards the end of August their attention gradually turns to sexuality rather than to food. Though still in considerable numbers they settle less on food. A chilly day in September soon makes a noticeable difference in their numbers but they are still evident (particularly in the kitchen) in diminishing numbers until November is well advanced.

I advanced this suggestion—that the seasonal incidence of diarrhœa was largely the result of the seasonal prevalence of flies—at a conference of medical officers of health in Essex in November, 1902, and again in a communication[1] I made to the Epidemiological Society of London in April, 1903. Further observation confirms me in the belief that the rôle played by the domestic fly in the *seasonal* incidence of diarrhœa has been very much underestimated. I inclose a copy of a special report on epidemic diarrhœa which gives some facts of interest as regards the incidence of this disease in Southend. In my opinion Dr. A. C. Rendle is more than probably correct in attributing much of the high infantile mortality in Liverpool to the fly-breeding, insanitary, open brick middens which, he says, still persist throughout the city, but corporations can move only slowly and it will take time to rid Liverpool of all these abominations. In the meantime, as a lesser evil, Dr. T. R. Bradshaw appears to advocate the use of preservatives in food. The methods of prophylaxis which are more commendable are, in my opinion, insisting on milk purveyors refrigerating all milk and urging on all purveyors and consumers the necessity for keeping all food supplies covered over with suitable covers to protect from flies and dust. Still Dr. Bradshaw's contention is not one to be dismissed without due consideration, though it is difficult to see how the addition of preservatives to food can be permitted as a trade procedure without incurring the risk of dishonest purveyors foisting stale articles on the public.

[1] Transactions of the Epidemiological Society, N.S., vol. xxii., p. 128. Brit. Med. Jour., Sept. 17th, 1904, and previous number.

Another serious objection is that the permission of the addition of preservatives would not tend to raise the standard of cleanliness either on the part of the purveyors or consumers. I am, Sirs, yours faithfully,

J. T. C. NASH, M.D. Edin., &c.,
Oct. 4th, 1904. Medical Officer of Health, Southend-on-Sea.

DEATHS FROM CHLOROFORM AND THEIR PREVENTION.

To the Editors of THE LANCET.

SIRS,—I feel sure that Mr. C. Hamilton Whiteford has hit the nail on the head when he says that the preference for chloroform among practitioners of many years' standing is really a case of "Hobson's choice." There is no doubt that a large percentage of practitioners do not know how to anæsthetise a patient with ether. I would even go further and say that many of them do not know how to give gas (nitrous oxide) and have not even handled a gas bag. In the surgeries of many practitioners the nitrous oxide cylinders are conspicuous by their absence.

Now why is there this dearth of really capable anæsthetists? Probably because every medical man considers himself capable of giving anæsthetics. But surely every man who gives chloroform is not an anæsthetist. The reason for this is the lack of interest taken by practitioners in anæsthetics. Ask any general practitioner about anæsthetics. Offer him a book to read on the subject. He will promptly reply, "Anæsthetics don't interest me," or something of the sort, and yet how important a function the administration of anæsthetics is. The indiscriminate use of chloroform in any operation leads to such a disaster as happened about 18 months ago in this town—namely, the death of a child under chloroform while being operated on for enlarged tonsils and adenoids.

Dr. A. D. Waller, before the British Medical Association in 1897, said: "I am greatly astonished that chloroform should in the face of the clinical experience of the last 50 years still be used in minor surgery." And yet still it is. How are we to alter this? There is no doubt we must educate the older practitioners. They should be convinced of the necessity of giving ether in preference to chloroform and they should have post-graduate classes in anæsthetics. They should be taught the way to give nitrous oxide, ether, ethyl chloride, &c. All hospitals in provincial towns or in incorporated boroughs should have anæsthetists of repute attached to the operating theatre and dental department. They should be allowed the liberty of holding classes for neighbouring practitioners where the principles involved in administering each anæsthetic could be taught. Then the death-rate not only of chloroform but of every anæsthetic would diminish both to the advantage of the public and the profession as well. With regard to ethyl chloride, it is most suitable for minor surgical operations (removal of tonsils and adenoids, opening and scraping abscesses, &c.). It is very portable. I have been so pleased with it that I intend in future to use it always in preference to gas for minor surgery.

I am, Sirs, yours faithfully,
Croydon, Oct. 1st, 1904. ROBERT HENDERSON.

THE BOILING OF MILK.

To the Editors of THE LANCET.

SIRS,—May I protest against Dr. Forbes-Ross's proposal to add another proprietary food to the enormous number already in existence? Many of the statements in his letter are distinctly controversial, though it is not worth while to discuss them at length. I should like, however, to suggest that although he has not met with cases of scurvy in infants due to boiled milk, it is a fact which can be vouched for by numerous authorities on infant feeding that this affection may follow the ***prolonged*** use of pasteurised, boiled, or sterilised milk. The cases are more common among the better classes for the reason that such precautions are more rigorously adopted than among the poor. Among the latter scurvy is not often produced in this way for the evil effects of boiling milk, as regards destroying its anti-scorbutic properties, are largely counteracted by giving the infant various tastes of other articles of diet. Scurvy in the infants of the poor is much more usually due to the use of condensed milk or to some one or other of the proprietary foods, dependent chiefly for their nutritive value on milk evaporated down to a varying degree of consistence or to actual dryness.

The virtues claimed for the suggested milk powder are as numerous, and no doubt as valuable, as those of most of the proprietary foods so largely advertised. To the average mind it hardly seems credible that "pure milk can be made from it." Surely a solution of a milk powder can never resemble pure milk. The purity of the powder might not be all that is claimed for it. What guarantee is there that the milk from which it is prepared is clean, fresh milk, devoid of bacterial contamination and the products of microbial life? That such a powder might be used with impunity and even with advantage in some cases is no doubt true. The same may be said with equal truth of other powders prepared from milk, for this is no new departure in the preparation of milk foods.

As long as the medical profession adopts the same line of action as Dr. Forbes-Ross and recommends proprietary foods, new or old, for the preventive treatment of infantile diarrhœa so long will it be difficult to establish the true means of preventing such outbreaks. Improvement in the hygienic surroundings of the infant and education of the mother in the methods of preserving food (without the addition of chemical preservatives) and in the proper methods of preparing the food and feeding the child are factors of the utmost importance. But, in addition, the mother must be able to obtain a supply of pure, fresh, clean milk, free from an undue amount of microbial contamination and chemical preservatives. Put shortly, we must endeavour to abolish our obsolete methods and to obtain a complete reorganisation of the milk-supply.—I am, Sirs, yours faithfully,

Upper Brook-street, W., Oct. 3rd, 1904. EDMUND CAUTLEY.

To the Editors of THE LANCET.

SIRS,—Mr. R. Bevan's letter in THE LANCET of August 27th has given rise to some discussion, many opinions, a little theorising, and a good deal of philosophic doubt. As one who pointed out some of the causes of the last named, may I again occupy a little of your space with the statement of a few of those useful articles—facts? The question as to the boiling of milk to be used for infants is part of the general question of how infants may best be fed artificially. Now, setting aside the question of percentages as not relevant to the present discussion, the following propositions sum up what we know for certain about infant feeding. 1. Grave digestive disturbances are often produced by using a food containing a large amount of insoluble carbohydrate. This disposes at once of the majority of "patent" foods. A list and analysis of these are given by Dr. R. Hutchison.[1] 2. Grave nutritional disturbances are very likely to occur by the use of a food very deficient in proteids or fats. This disposes of desiccated foods, at any rate when only to be mixed with water, unless the preparation is only intended to be used for a very short period. Dr. F. W. Forbes-Ross in his interesting letter in THE LANCET of Oct. 1st does not give the composition of his dried milk but most dried and condensed milks are very deficient in fat. 3. "Summer diarrhœa" is largely due, in this country at any rate, to the spore-bearing "peptonising" bacilli of Flügge which can only be destroyed by very prolonged heating. 4. Milk which has been manipulated artificially causes in a certain rather small proportion of cases the symptoms of infantile scurvy. Holt's statistics[2] go to show that the more heating and manipulation the milk undergoes the more likely it is to cause infantile scurvy. Merely pasteurised milk was only responsible for three cases while sterilised milk (boiled for one hour) gave rise to 107. 5. Prolonged boiling profoundly alters the subtler physiological properties of milk. Scurvy, only seen in a few cases, must be regarded as an intense reaction due to some special idiosyncrasy of the patient. This idiosyncrasy has its gradations and in some few cases is manifested when only slightly altered milk is used, while in a large number of cases much more alteration in the milk is necessary. There is a yet larger number of cases in which even "patent" foods do not give rise to scurvy but it does not follow from this that by feeding an infant on much-altered milk we are not depriving him of many substances which are very necessary to his proper development.

The facts show that children should be fed on milk and

[1] Food and Principles of Dietetics, second edition, p. 446.
[2] Diseases of Infancy and Childhood, second edition, p. 243.

not on proprietary foods or dried products; that if the milk is not boiled for a long time during four months in the year it cannot be used (except immediately) without great risk of diarrhœa; that if it is so boiled there are a certain, but not large, risk of producing scurvy and a much larger risk of interfering with the infant's health in a less obvious manner. It is unscientific to run either of these risks. There is only one true solution of the problem—to use a perfectly pure, clean milk and to keep it in sterile, closed vessels at a low temperature. This, however, is a counsel of perfection. In the meantime there is a counsel of imperfection—namely, to pasteurise the milk and to keep it under the conditions above indicated. For the classes who can hardly be expected to do this the only plan is to provide infant milk depôts and to teach them their value.

I will not enter into the question of preservatives. We have not yet at our command a sufficient number of observations and so I shall content myself with calling Mr. Cecil Revis no harsher name than "somewhat previous."

I am, Sirs, yours faithfully,

J. M. FORTESCUE-BRICKDALE, M.A., M.D. Oxon.

Clifton, Bristol, Oct. 1st, 1904.

To the Editors of THE LANCET.

SIRS,—I desire to reply as briefly as possible to the letter of Dr. F. W. Forbes-Ross, which appeared in THE LANCET of Oct. 1st, p. 979. He considers the question of boiled milk and scurvy "the classical example in medical circles of 'a little knowledge being a dangerous thing.'" May I remind him that it is precisely those who have devoted most attention to the scientific aspects of infant feeding who are responsible for the contention that the boiling of milk gives rise to scorbutus. I will quote but one authority—Dr. L. Emmett Holt: "How great was the danger of scurvy from a prolonged use of sterilised milk as a diet was first prominently brought out by an investigation into the causes of scurvy by the American Pediatric Society. Sterilised milk was the previous diet in 107 of the 379 cases in this report, being second in importance only to the proprietary infant foods. ..... Again and again cases have been cured by simply changing the diet from sterilised to raw milk, so that there seems to be no escape from the conclusion that the heating really produced the disease."[1] I hope that Dr. Forbes-Ross does not include Dr. Holt among those whose "little knowledge is a dangerous thing." He states that in 15 years he has never seen a case of "scurvy rickets" due to boiled milk. But scorbutus in infants frequently results from a diet of boiled milk and I am constantly seeing cases.

In my "Nutrition of the Infant" I have devoted considerable attention to this subject and, without desiring to claim any degree of infallibility, I venture to think that the facts discussed in the chapters on "The Heating of Milk and the Resulting Changes" and "Scorbutus" are not to be got over by dogmatic statements in regard to the incidence of such a curious disease as "scurvy rickets." I would ask those interested in the question to read the report of my evidence before the Inter-departmental Committee on Physical Deterioration. For one of the members of the committee began his examination with the question—"Will you think me troublesome if I ask you to go categorically over what you have said to us?" But Dr. Forbes-Ross is not content with boiled milk. He recommends the use of dried cow's milk dissolved in water. It is really distressing that so many members of the profession will so persistently refuse to really consider the extreme importance of the food of the infant in regard to structure and development. He gives 15 reasons for advocating the use of this powder. I will content myself with a single objection. It is not a *food* for infants. And in connexion with this I would refer him to my letter published in THE LANCET of July 16th, 1904, p. 173. In hospital and private practice I have had a great number of infants under my care. Not one of them has developed zymotic enteritis or anything like it. Not one of them has been fed on "boiled" or "sterilised" milk. The difficulties of meeting the requirements of the infants among the poorer classes are serious. But we shall not succeed in surmounting these difficulties by ignoring them.

I am, Sirs, yours faithfully,

Harley-street, W., Oct. 1st, 1904. RALPH VINCENT.

[1] "Recent Progress and Present Problems in Pediatrics." An address delivered before the Cleveland Medical Society, Oct. 26th, 1900.

AXIS TRACTION FORCEPS.

To the Editors of THE LANCET.

SIRS,—There appears in Dr. G. E. Herman's work, "Difficult Labour," Chapter XXV., in the section *re* forceps describing the mode of attachment of the traction rods: "Theoretically they *should* be attached opposite the equator of the head, but this is opposite the middle of the fenestræ." It has occurred to me for some time that this could be accomplished by means of a transverse rod with rounded edges and surface, joining the two sides of the blades crossing the middle of the fenestræ, the traction rods to be attached to their centres and able to be detached for cleansing purposes, and the traction rods to be attached to the outer sides as in Dr. C. J. Cullingworth's forceps. In order to make the instrument light the handles should be made of aluminium. I shall be glad of your opinion.

I am, Sirs, yours faithfully,

R. E. W. JENNINGS, M.R.C.S. Eng., L.R.C.P. Lond.

Grays, Essex, Sept. 24th, 1904.

*** We think that the apparatus is feasible but that it presents certain disadvantages of which the most notable are (1) pressure on the head, and (2) the liability of the head to bulge into the fenestræ.—ED. L.

LAYMEN AND ELECTRICAL TREATMENT.

To the Editors of THE LANCET.

SIRS,—If you are not too weary of this correspondence perhaps you will allow me to complete up to date the history of the patient with exophthalmic goitre referred to by me in THE LANCET of Sept. 17th. She subsequently got very marked and lasting benefit as the apparent result of about three months' treatment by the constant current, administered, alas, by her own mother.

I am, Sirs, yours faithfully,

Wimpole-street, W., Oct. 5th, 1904. E. STANLEY SMITH.

THE MEDICAL MAN, THE CORONER, AND THE PATHOLOGIST.

To the Editors of THE LANCET.

SIRS,—I have read your annotation on the above in THE LANCET of Oct. 1st, p. 961. I have also seen published in other journals accounts of the incident to which you allude. There is one point which has not been touched on in any of the reports I have seen. The juryman asked the coroner if the employment of the "pathologist and toxicologist" in question meant any extra expenditure and the coroner replied that no additional expense would be incurred thereby. If the coroner is correctly reported he said what he should have known was untrue. The staff of a hospital supported by voluntary contributions receive no fee for post-mortem examinations nor for their subsequent attendance at the inquest. The introduction, therefore, into the case of the "pathologist and toxicologist" is an extra expense to the ratepayers.

I am, Sirs, yours faithfully,

Oct. 5th, 1904. CORONER.

CHARITY VOTING REFORM.

To the Editors of THE LANCET.

SIRS,—Having been very busy I have only just read Mr. Sturges's letter in THE LANCET of Sept. 10th, p. 793. Will he kindly state what the effect has been on the incomes of the various institutions he names? Has the abolition of the voting system increased or diminished the incomes?

I am, Sirs, yours faithfully,

Oct. 2nd, 1904. A CONSTANT READER.

TRIALS OF SMALL MOTOR-CARS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Sept. 24th an annotation appeared under the above heading in which you state that the cars in the Hereford trials were arranged in four classes according to price, varying from £150 to £200. I beg to inform you that five cars competed costing less than £150,

three of them costing £125 and under, and one of these came out very well in the judges' report.

I am, Sirs, yours faithfully,

J. H.

*** Our note on the trials was necessarily brief. The car referred to by our correspondent is evidently the "Speedwell."—ED. L.

MEDICAL NOTES FROM THE FAR EAST.

(FROM A SPECIAL CORRESPONDENT.)

(*Continued from p. 984.*)

ON August 7th, at Sasebo, by the kindness of Surgeon-General Totsuka, F.R.C.S. Eng., of the Imperial Japanese Navy, I had an opportunity of going over the hospital ship *Saikio Maru*, accompanied by Dr. H. Sonobe, who, having spent three years at Johns Hopkins Hospital at Baltimore and at Philadelphia, speaks good English and now after nine years' service ranks with a first lieutenant in the navy. The Japanese navy employs two hospital ships, the *Kobe Maru* and the *Saikio Maru*, which ply alternately between the fleets, chiefly Admiral Togo's fleet before Port Arthur, and the chief naval base at Sasebo. A small proportion of cases only are drafted on to the newer red-brick hospital at Kuré, an hour's journey south from Hiroshima on the Inland Sea. The epithet "maru," meaning literally "round," is applied to all non-combatant ocean-going ships, whether employed by Government or by private firms. These hospital ships are entirely independent of the military medical service and Red Cross, which take their sick to Hiroshima instead of Sasebo, but are, like them, chartered and fitted up for their present use only during active service. By good fortune the *Saikio Maru* arrived at Sasebo on the same day as myself, August 6th, so that we were able to see the patients arriving in hospital and the next morning at 9 A.M. to see the ship before she had been cleaned and tidied up for her next voyage. It was for me an additional privilege to have been allowed in the exigencies of a short visit to see the *Saikio* at a time when she was bound to be least in order and the favourable anticipations which I had formed of the transport service were strengthened rather than weakened by the experience.

The *Saikio Maru* is a single-funnelled, two-masted steamer of about 1200 tons register belonging to a local Japanese company and fitted up temporarily for her present work. The chief accommodation for sick and wounded consists of four large wards, two in front of, and two abaft, the funnel, the former for medical and the latter for surgical cases. The German differentiation into "innere Krankheiten," or internal diseases (the officer in charge spoke only German), and "chirurgische Krankheiten," or surgical diseases, is in general use in all the Japanese hospitals, corresponding fairly well, at least in military work, to the distinction in vogue in our own services. These wards extended across the breadth of the ship and were situated one above the other on the main and lower decks,[1] the state-rooms on the upper deck being reserved for operating theatre, pharmacy, laboratory, disinfecting chamber, and the quarters of medical and navigating officers. In the South African war some of the British hospital ships had similar ward accommodation—as, for instance, on the *Avoca*—beneath the main deck in one of the holds, with a stairway built up through the hatch. Ventilation is effected chiefly through canvas wind-sails. The arrangement is not altogether satisfactory, especially for a long voyage in tropical heat; but for sturdy convalescents drawn from classes of mankind that sleep soundly in hot rooms with stale air, the lower decks may, perhaps, suffice for use at night under exigencies of war, so long as the patients are made to spend the day up on deck. Still more is this reasonable with the Japanese wounded sailors when they have to be transported only two days' journey across the sea in beautiful weather, with the thermometer every day up to 75° F. in the shade on board ship and varying only 10° during the 24 hours.

[1] I am not quite certain about these two wards 'neath decks, having been shown only one, for medical cases, for'ard. The number-capacity is, however, official.

The accommodation of the vessel is as follows, the figures in italics being the only ones not given by the surgeon in charge: upper medical ward, 44; lower medical ward, 28; upper surgical ward, 34; lower surgical ward, *37*; two isolation rooms, 14; cabins for commissioned officers, nine; and cabins for warrant officers, 11; making a total of 177. The shipload discharged on the previous day numbered 145, of whom the large proportion of 47 were stretcher cases. It will be noted, of course, that the nearer the scene of action is to the base the greater will be the proportion of serious cases and the greater must be the provision of stretchers and stretcher-bearers. The cots were arranged down the length of the ship in two tiers in single file, end to end, with a gangway two feet six inches wide between each file. The Japanese in their houses being accustomed to sleep on the floor, it is sufficient luxury for all but the most serious cases to lie on a three-inch straw mattress on wood; and the cots, therefore, are mere wooden boxes, or shallow drawers, with sides six inches high, one of which flaps down on hinges to enable the patient or the mattress to be moved in and out more easily. At either end the cot is hung by an iron plate to a wooden post, allowing free lateral movement on a two-foot radius, although of pitching and tossing it gives the patient his full dose. It is a pity this should not be obviated in ambulance cots of all kinds. The Japanese have in their public parks a very fascinating form of swing which consists of a heavy beam some 20 feet long and eight inches thick, hung horizontally a foot above ground by chains from gallows 22 feet apart. Any number of children from one to 20 can stand on this beam and by common action swing it either to and fro or from side to side. It might be worth while to try fitting up cots in some such simple and inexpensive way. But nothing can prevent the patient rising and falling with the part of the ship he is in, and this is probably one of the chief factors of discomfort in a rough sea, another factor being the unconscious movement of the eyes in sympathy with the deck or ceiling, which might be largely overcome by the provision of a homogeneous black curtain and covering for a cot, at least for that part of it on which the eyes of the occupant rest. This, however, is a refinement for physiologists and ocean steamship companies, not for a Japanese naval hospital ship in the present war.

The bedding consists of a straw mattress, cheap and easily refilled; white sheets (unknown to the Japanese except in connexion with hospitals); and a red blanket in reserve. Before crossing the threshold of the wards everyone takes off his or her outdoor pattens, sandals, "Jemima" boots or shoes, and puts on ward slippers, according to the cleanly custom in this country, which we should long ago have adopted at home. The importance of white sheets is perhaps not fully realised by those who have travelled little. The common Japanese bedding consists of dark-coloured silk or cotton quilts, spread on the floor. These cannot be washed and to rub them over with a damp cloth is considered sufficient, while their colour prevents any stains being visible. White sheets and white caps and dresses for nurses have therefore been introduced into hospitals but not without considerable difficulty, for white is the colour of mourning and was vigorously objected to at first. The common uniform now of all patients, whether in bed or convalescent, on shore or at sea, at the front or base, is a plain white kimono, or loose dressing-gown, simply fastened by a small sash round the waist and adorned only by a plain red cross on the right arm. It is a question whether we should not do well to have plain white pyjamas for all lying-down cases in hospital and a proper supply of them as part of a normal equipment of a field hospital. So simple are the tastes of the common people in Japan that there would be no need for luxuries, even if the voyage were for three weeks instead of days; and so one found on the ship no lockers, cushions, tables or chairs, libraries or games. Even if they had the taste for any such comforts they probably would not realise any desire for them. War is essentially their one aim and object at the present time. They do not need relaxation or change of ideas. The officers' accommodation is equally simple, the usual first- and second-class cabins, respectively aft and for'ard, being used without adaptation by officers and warrant officers, one or two to each room.

Three small rooms have been adapted to isolate 14 cases of infectious disease. One, originally a second-class lavatory, is completely detached from the large ward, being placed right aft, on the starboard side of the steering-gear. The

others are away for'ard, close to the warrant officers' cabins, although not in direct communication with them. The provision of 14 isolation beds in three distinct wards is generous but not excessive, for a shipload may easily include cases of typhoid fever, beri-beri, and a suspicious rash, for instance, all of which require separate isolation, and an unused isolation room may always be used for ordinary cases. Moreover, the Japanese are very particular on the subject of dysentery, enforcing the most rigid measures of quarantine, isolation, and disinfection in all suspicious circumstances with a view to stamping out this, their commonest epidemic disease. Whether rational or not this necessitates a greater provision for isolation than usual. And they have here what one never heard of or saw in any ship during the Boer war—namely, a steam-disinfector in working order. This disinfector was made in Japan; in shape, size, and principle it was of the Washington-Lyon type and stood in a separate outhouse on the upper deck, with intake and outtake chambers properly separate. On the previous day three cases of typhoid fever had been landed and the bedding and clothing used by those patients were now in process of disinfection by heat.

The latrine system was fairly good, arranged, of course, with standing-boards instead of seats. In the separate water-closets standing-boards had just taken the place of seats. In a series of five closets close to the chief medical ward on the main deck there was in each compartment only a standing-board six inches above a common trough which was cleared automatically when the ship was in motion by a constant stream of salt water with a periodic flush. Unfortunately in harbour the trough remains unflushed and dry.

A simple hoist is arranged to raise lying-down patients to the upper deck for discharge or for operation or examination and dressing of wounds. This had the advantage over a similar arrangement on our s.s. *Spartan* of a hand-winch, which lessened the labour required. On the upper deck we took off our shoes again to enter the operating theatre, a clean and comparatively spacious little room made by knocking three cabins in together, with a preparation-room next door, and little equipment except wash-hand basins and sterilisers for dressings and for washing-water. The only drawback was the defective light owing to the spar- or saloon-deck outside cutting off more than half the light from these cabins which opened on to a covered gangway, six or eight feet across. The skiagraphic room contained a large induction coil, rests and holders for the tubes, a couch, and a stand for the two or three tubes in stock. A good deal of work is done both in this and in the operating-room, the ship being looked on essentially as a hospital and not merely as a transport. Major operations, however, are postponed in order that they may be performed on shore unless there is danger of sepsis or gangrene.

Another small room, of about the size of two cabins, was fitted up as a dispensary with well-arranged glass-windowed cupboards and a number of accessory appliances, such as a pair of formalin (paraform) stove-disinfectors, while in another room was a laboratory table with microscope in use, a good selection of stains, and even an elaborate steel microtome on the Schauze principle of the inclined plane. The chief omission to my mind was that of a weighing-machine—the most useful index of the retention of health by healthy troops and of the improvement in health by convalescents. The need of this is naturally less for a three days' than for a three weeks' voyage.

In the disembarcation of the wounded there was a point which deserved attention. When a patient was being carried on a stretcher down the ship's side ladder the foremost, or lower, bearer was preceded by a man walking backwards and partly supporting the handles of the stretcher which were nearly on a level with his shoulders. This method of reinforcing the lower bearer of a stretcher in descending steps is a useful addition to stretcher drill which at home, two years ago at least, contained no suggestion for the purpose. In ascending steps, on the other hand, the spare man of the squad should lean his hand on the small of the back of the rear bearer who will then have little more to do than to support the actual weight of his end of the stretcher and patient. I have an excellent photograph of the disembarcation of wounded from the sister ship, the *Kobe Maru*; it was taken by Dr. Habuto and is a graphic illustration of the scene. The patients and male nurses wear white clothing; the seamen, warrant officers, ship's mates, and naval surgeons wear blue. The Red Cross *brassard* is worn on the right arm instead of the left.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Housing Question.

THE opening of the courses in hygiene conducted at the Midland Institute has been, as usual, marked by the delivery of a public discourse by Dr. W. Wright, a member of the University staff, who has in his charge the courses in question. On this occasion he took for his subject that of the housing question which, he said, was only half stated when it was said to mean the provision of better houses for the poor. So far as England was concerned the fault lay perhaps more with the environment than with the actual dwellings themselves. He emphasised the importance of the subject by inquiring how it was that the death-rate in the city was double that of the country and by stating that the unhealthy surroundings were not merely responsible for much of the drunkenness in large towns but also for the presence of zymotic diseases and consumption, and for the anæmia, chronic ill-health, and absence of energy so characteristic of the poor. After describing and commenting upon the state of affairs to be met with in any large town the lecturer turned to the consideration of possible remedies for the existing conditions. He was of opinion that the best way of dealing with the difficulty was for municipalities to purchase land in the suburbs and to have an extension plan prepared which should determine the directions in which the town would be allowed to grow. This plan should include gardens, squares, tree-planted promenades, districts for manufactories, and districts for residence. The municipality might then encourage building societies to make use of the land by granting leases of from 60 to 80 years, by lending money at low rates, and by taking shares in the societies. By keeping possession of the land the municipality could itself have the unearned increment resulting from the growth of the city and the consequent increase in the price of land, instead of its passing, as at present, into the pockets of the land speculators. By turning over the building to societies they got over the objection to municipal houses and a privileged class and furnished the tenant with an incentive to purchase his own house. Hand-in-hand with that policy they should have cheaper transit, which would allow the worker to live away from his place of employment. Both these policies had been tried on the continent with the best of results. In Holland and Germany it was compulsory for every locality above a certain population to prepare an extension plan. The injunctions given by the Prussian Government to Prussian towns, insisting upon their making purchases of land, were so strong that they practically amounted to orders. As regards transit in Belgium where the railways were mostly owned by the State, workmen could, if necessary, live at a distance of 30 miles from their place of work, travelling to and fro daily for 1*s.* 9*d.* per week, the time spent in travelling being more than compensated for by the comforts of a country home, by the cheaper rent, and by the greater working efficiency. Other useful ways of dealing with the question, which, however, could only be regarded as supplementary, were house-to-house inspection; rating of building sites on their selling value, as was done in New Zealand and Germany; the rating of the houses of the rich on a different basis from those of the poor; and the building by the municipality of tenements for untidy and unscrupulous tenants where they might be kept under a quasi-police supervision and educated up to better and more sanitary habits.

Bacteria Process of Dealing with Sewage at Saltley.

On the occasion of the recent visit of the Incorporated Society of Municipal Engineers to Birmingham a visit was paid to the sewage works at Saltley. After an inspection of the works the visitors were entertained at lunch by Mr. John D. Watson, engineer to the drainage board, who, in responding to the toast of his health, said that they had a very excellent drainage board constituted by Act of Parliament and including the city of Birmingham, which was the predominant partner, Aston, Handsworth, Erdington, Smethwick, Sutton Coldfield, and one or two other places. These had combined for the purpose of treating the sewage of a great population of somewhere about 850,000 persons. They had their difficulties. Formerly the whole system was one of broad irrigation, now they were changing their methods and were finding difficulties in making the change. There was the difficulty of getting rid of sludge. They had not

been able to make precipitating tanks all at once. They had a sewage which was difficult to septicise; indeed, it was sometimes almost impossible, though the actual amount of micro-organisms was not so great as in other cases on account of the fact that the sewage contained a large number of iron salts with acids of various kinds. They had also constructed a number of bacteria beds, each of which was a quarter of an acre in size and capable of purifying a quarter of a million gallons. All these beds were more or less different and were so made because they were still seeking the best method of dealing with the sewage. His hope was that in five or ten years' time they would see all the land which they had passed through that morning—land now covered with crude sewage—under grass. He was not dissatisfied with land treatment. He found that they could obtain from it a purification of 92 per cent. and sometimes even of 93 per cent. and that was a very considerable purification, as great probably as they would ever obtain from bacteria beds. But if they could minimise the area required for the disposal of sewage they would at the same time minimise the chance of nuisance and that would be a great thing. The drainage board had acquired nearly six miles of the valley of the Tame and it was almost impossible to go further. Whilst they found that they were curtailed in that way the population of the district grew in such a ratio that, if they were to continue the system of broad irrigation and downward intermittent filtration, they would have to acquire and to lay out a fresh acre and a quarter every week.

City Analyst's Report.

The report of the city analyst for the year 1903 has recently been published and states that 444 samples of commodities were analysed, of which 286 were obtained under the provisions of the Sale of Food and Drugs Act. Of the articles belonging to this last class 25 were found to be adulterated—five by preservatives only and 20 in other ways. Out of 169 samples of milk which were examined 21 were found to be adulterated or deficient. Butter, lard, and cheese came triumphantly out of the test except that a sample of unlabeled margarine was detected. The report draws particular attention to the necessity for examining into the compounding of prescriptions, a matter which has since received attention as will be seen from the cases recorded in my letter of a fortnight ago. The analyst considers that there are two matters which particularly require checking in connexion with prescriptions—namely, diminution of the stipulated proportion of some expensive ingredient and a careless compilation of the mixture calculated to thwart the intention of the medical man by whom the prescription was written.

St. John Ambulance Association.

The Birmingham corps has been recently inspected by Brigade-Surgeon-Lieutenant-Colonel G. S. Elliston, V.D., deputy commissioner of No. 3 central and eastern districts. Chief Surgeon Thomas Nelson was also present and there were 104 members of the corps on parade. After the inspection Lieutenant-Colonel Elliston addressed the men and said that he was very much pleased with their appearance and with the general smartness of their turn-out. He noticed that there was a large increase in the number of uniformed men and was pleased to note this, for in such a large and populous place as Birmingham the corps would be frequently on duty and could be of little use unless the members were in uniform, as neither the police nor the public would understand what they were. It was only the uniformed man who could move freely in the crowd and do his duty. He was much pleased with their drill and though some people thought that comparatively little attention should be devoted to that part of the work and much more to the question of first-aid he did not agree with that view completely, for he held that drill was a very important matter since it was a healthy exercise and tended to develop habits of obedience and discipline, and unless they were well up in stretcher drill on the parade ground they would not get on well when they had to deal with actual trouble in the streets or in large crowds.

Oct. 4th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Proposed Sanitary Reforms in Liverpool: Comprehensive Measures.

THE health committee of the city council has decided to apply to Parliament when the next Omnibus Bill is promoted for the following powers: to close at the expiration of six years from the passing of the Act all cellar dwellings the floors of which are more than three feet six inches below the surface of the ground; to deal with sanitary conveniences in offices and other places of business; to amend the Shop Hours Act, 1892, so as to limit the number of consecutive hours of employment of any young person under 18 years of age; to regulate the time and manner in which the emptying of middensteads and the removal of manure or other offensive matter may be carried out; to prevent any receptacle containing refuse being deposited in any streets without the same being securely covered; to require ashbins to be substituted for such ashpits as shall be proved to be nuisances and the nuisance arising from which cannot be prevented without the ashpits being abolished; to extend the provisions of the Sale of Food and Drugs Act, 1875-1899, and to make them applicable to food prepared for human consumption in restaurants, cafés, hotels, bakehouses, and ships, and to enable samples of food to be taken when being delivered to any place where food is supplied or prepared for the use of the public; to regulate the manner of packing and carriage of live poultry; to make laws relating to the sanitation of hair-dressing saloons; to carry up-cast ventilating shafts of sewers up buildings and in passages; to deal with smoke and effluvia from railway tunnel ventilators and smoke nuisances arising in connexion with the working of locomotives or traction engines; also to deal with smoke nuisances in connexion with any vessel on the Mersey or in dock within the port of Liverpool. At present certain ocean-going vessels do not come under the ban of the committee's regulations, hence the objectionable practice. It is mainly those in charge of coasters who are prosecuted and fined. When the new powers are obtained the ocean liners will no doubt exercise a little restraint on their smoke. The only consolation at present is that the state of things in this respect on the Mersey is not so bad as that on the Clyde. The Bill will also contain a clause enabling the corporation to place tubs, seats, and newspaper kiosks on the public highways.

The Bucknill Scholarship at the University of London.

Mr. H. L. Tasker of the University of Liverpool has been elected to the Bucknill scholarship of £30 a year for four years at the University of London.

Liverpool Death-rate now Normal.

Dr. E. W. Hope, the medical officer of health, reported to the health committee on Sept. 29th that the death-rate of the city was 21·6 per 1000, as compared with 21·1 per 1000 last year, at which the committee expressed its satisfaction.

Liverpool School of Tropical Medicine: Yellow Fever Expedition to the Amazon: Report of the Trypanosomiasis Expedition to the Congo, 1903-04.

The committee of the School of Tropical Medicine proposes to despatch a second expedition to the Amazon in view of the necessity of investigating still further the causes of yellow fever. Medical research has succeeded in discovering several facts in connexion with yellow fever, in particular the fact that the disease is transmitted through the medium of the mosquito. At the same time the cause of the disease is absolutely unknown and can only be ascertained by research on the spot. The Liverpool School of Tropical Medicine has recognised since its formation the duty imposed upon it of doing its best in the interest of those who have to spend their lives in a region where yellow fever is endemic. The late Dr. Walter Myers was selected by the committee of the school, together with Dr. Herbert E. Durham, to undertake an expedition to Para to investigate the cause of the fatal disease only a few years ago. Both members of the expedition were attacked by the malady and it will be remembered that Dr. Myers succumbed to the disease; a brilliant investigator was thus lost to science. The nature of the work demanded of the experts selected entails so much risk that it is a matter of gratification that capable volunteers are to be found ready to undertake the duty. The expedition will probably start at the end of the year. The names of the members will be published later. The committee has published its thirteenth memoir devoted to reports of the trypanosomiasis expedition to the Congo, 1903-04, by Dr. J. E. Dutton, Dr. J. L. Todd, and Dr. Cuthbert Christy. The book is produced in quarto form and contains, besides matter fully describing the experiments, conclusions, &c., of the authorities named, several well-defined photogravures showing the condition of victims of

the disease in various stages. It also embraces a comparison of the sleeping sickness of the Uganda and that of the Congo Free State and includes a note on tsetse flies by Mr. E. E. Austin of the zoological department of the British Museum.

Oct. 4th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Infirmary.

DURING the past few years special appeals have from time to time been made by the board of management of the Cardiff Infirmary for assistance in the maintenance of special departments of that institution and the adoption of this policy has been followed by a considerable amount of success. The provision of funds for the support of the 16 beds in the women's ward was undertaken by an outside committee and five beds have now been endowed, three by individual donors of 1000 guineas each and two by the collection of a like sum from the Rhondda valleys and from the Pontypridd district. The remaining 11 beds are supported by annual subscriptions collected in other districts and in collieries. In the children's ward of the infirmary there are 26 cots, but from lack of funds only 16 can be occupied. An anonymous donor has come to the assistance of the board by sending a cheque for 1000 guineas to endow one cot and in doing so he appeals to the "kind-hearted fathers and mothers of the many happy well-to-do little ones in Cardiff" to support the cots which are now empty. Early in the present year Sir John Williams suggested the establishment of a convalescent home in connexion with the infirmary as an economical means of increasing the accommodation available in Cardiff and a step in this direction has now been taken by arrangement with the governing body of the Porthcawl Rest. From Nov. 1st to March 31st there will be 12 cots in the Rest at the disposal of the infirmary management which will provide the requisite number of nurses and will pay 10*s.* 6*d.* weekly for each child and nurse sent to the Rest. This will do something to lessen the pressure upon the resources of the children's ward in the infirmary to which there are at present nearly 150 little patients awaiting admission. The Porthcawl Rest is the only convalescent home in South Wales and accommodates more than 100 patients, including 20 children.

New Workhouse at Newport.

At the thirteenth conference of the Poor-law authorities of South Wales and Monmouth, which was held at Newport (Mon.) on Sept. 27th and presided over by Lord Tredegar, an account was given by Mr. W. H. Brown, the vice-chairman of the Newport board of guardians, of the workhouse which has been recently erected by the Newport board. The cost of this building, exclusive of the land which was given some years ago by the Tredegar estate for workhouse purposes, was a little over £100 per bed and Mr. Brown compared this sum with £8 10*s.* per bed which was the cost of workhouses erected in Kent in the year 1835. The principal features of the Newport workhouse are the classification of the sexes and of the old and young, separation of the worthless characters from the better behaved, efficient supervision by officials, good bathing facilities, ready exits in case of fire, quarters for married couples, separate accommodation in detached buildings for infants and for the sick and infirm, detached receiving wards, and the provision of workshops for men and of a well-equipped laundry for women.

The Tramp Question.

Upon the second day of the conference there was an animated discussion on the best method of dealing with tramps. There was a general agreement among those present that the *bonâ-fide* workman in search of employment should receive different treatment from the professional tramp, with whom he should not be compelled to associate, and that he should be assisted in obtaining work. For the habitual tramp the establishment of labour colonies or settlements was advocated, one speaker suggesting that there was a large quantity of uncultivated land in South Wales which might be reclaimed, while another one pointed out that the reafforestation of land might be undertaken, tree planting being a form of work in which vagrants could be advantageously employed. The opinion was freely expressed that vagrancy should be controlled and regulated by the State and not by local authorities, and a motion was passed, with only a few dissentients, calling upon the Government to deal with the tramp question generally as a matter of much importance, the present system acting unfairly upon some unions and not being effectual in lessening the number of tramps in the country.

Penarth Isolation Hospital.

The Glamorgan county council has made several compulsory orders under the Isolation Hospital Act, 1893, and one of these constituted Penarth urban district a "hospital district." The hospital, which has been built by the urban district council, is now completed. The buildings, which are on the Local Government Board plan, stand on a site of three and a half acres and include an administrative block, a laundry block, a one-storey pavilion with two six-bed wards, and a pavilion for four patients. The total cost of the hospital was £8000.

School Children in Bristol.

One of the recommendations of the Inter-departmental Committee on Physical Deterioration was that definite provision should be made by the various local authorities for dealing with the question of underfed children. The Bristol education committee had the matter under consideration on Sept. 29th and referred it to a sub-committee to report as to the practicability of giving effect to the proposal.

Winsley Sanatorium.

Dr. W. A. Salmond has been appointed medical superintendent of the Winsley Sanatorium and will begin his duties on Nov. 1st. It is hoped that patients will be admitted about the middle of November.

Death of Mr. T. F. Edgeworth, M.R.C.S. Eng., M.S.A.

The sudden death on Sept. 29th of Mr. Thomas Francis Edgeworth has removed from Bristol one of the oldest and most esteemed practitioners. He was born in Bristol in the year 1834 and after qualifying in 1855 he acted as a naval surgeon for about three years, practising for the remainder of his life in Bristol, where he took a very active interest in political and municipal affairs. He is survived by his widow, two daughters and one son, Dr. Francis Henry Edgeworth.

Extension of Bristol.

The boundaries of Bristol were extended in 1897, when the area of the city was increased by 7196 acres and the population by over 50,000 persons. A still further extension took place on Oct. 1st last, when 5347 acres and 13,443 persons were added to the city, the rateable value of which was increased by nearly £70,000. The area of Bristol is now 17,000 acres, the population 355,000, and the rateable value £1,723,000. The increase in population has not altered the relative position of Bristol among the county boroughs of England and Wales. There are still five boroughs with a larger population—namely, Liverpool, Manchester, Birmingham, Leeds, and Sheffield.

Swansea Sewerage Scheme.

The sewage of Swansea has always been discharged into the bay around which the town is built. Until 1855 the river and the streams which tumble down the hillsides were the natural sewers but in that year a drainage scheme was established and this has from time to time been extended until there are now at least five properly constituted sewer outfalls. The increased population to be provided for and the flooding of houses in the lower parts of the borough have rendered necessary still further extensions of the public drainage and upon several occasions during the past eight or ten years attempts have been made by the corporation to carry out a more or less comprehensive scheme of sewerage for the town. Unfortunately, there has been very considerable difference of opinion as to the best means of relieving the pressure upon the existing sewers and at the same time of draining certain newly built portions of the town. One scheme, which was estimated to cost £80,000, provided for an outfall near the pier-head. This was approved by the borough engineer and by the medical officer of health (Mr. Ebenezer Davies) and met with a great deal of support. An alternative proposal which would cost considerably less money and by which the sewage was to be discharged into the bay on the western side of the town, was, however, after much discussion, finally approved by a majority of the members of the corporation. The sanction of the Local Government Board was obtained to the scheme and it appeared likely that it would actually be

carried out. The Board then pointed out that the sanction of the Board of Trade must be obtained for the construction of all works below high-water mark. This sanction was refused on the ground that the direction of the currents would convey sewage matter over the oyster beds in the bay. It was then proposed to meet this objection by constructing a septic tank at the outfall large enough to hold 212,000 gallons, which was the amount of sewage estimated to accumulate in the 24 hours. An inquiry into this latest proposal was held on Sept. 27th and the following days by an engineer representing the Board of Trade and a superintending inspector of the Board of Agriculture and Fisheries. A large amount of evidence was given both for and against the scheme which is estimated to cost £53,000. The opposition was principally based upon the anticipated damage to the mussel and oyster fisheries and upon the fact that the proposed outfall was close to the sands which are one of Swansea's greatest attractions. It was contended, on the other hand, that all danger to the fisheries and all nuisance on the sands would be overcome by the intercepting septic tank which it is not proposed, however, to supplement with any form of filtration. In the event of the scheme being sanctioned and carried out it will be of interest to follow its history, for if successful it will be a great triumph for the septic tank.

Presentations.

Dr. Rowland Lee, who has been for two years resident medical officer at the Cardiff Union Hospital and who is leaving Cardiff, was presented on Sept. 26th with a dining table and a marble timepiece by his fellow officials.—Mr. Albert Bradshaw, who is leaving Wattlesborough, Salop, where he has practised for the last 11 years, was presented by his patients on Sept. 27th with a gold watch. Mrs. Bradshaw was at the same time the recipient of a marble clock.

North Devon Infirmary, Barnstaple.

The ladies of Barnstaple, at a meeting held on Sept. 28th under the presidency of Lady Susan Fortescue, resolved to form a ladies' association in connexion with the North Devon Infirmary. The association will seek to promote the prosperity of the institution by organising entertainments in aid of the funds, arranging concerts for the patients, collecting money, contributing clothing to patients, and interesting others in the work of the association.

Oct. 4th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Benn Eye, Ear, and Throat Hospital, Belfast.

AT the thirty-third annual meeting of the supporters of this hospital, held on Sept. 27th, special reference was made to the loss sustained by the charity in the death of its founder and first surgeon, Dr. W. A. McKeown. During the past year 238 persons were treated in the wards and there were 7063 attendances of extern patients. The total income for the year was £908 1*s.*, an increase of about £14 compared with the previous year. Dr. W. M. Killen has been appointed acting surgeon in place of the late Dr. McKeown and he is assisted by Dr. Robert Allen in the surgical work and by Dr. I. A. Davidson who has been appointed anæsthetist. Very special reference was made by all the speakers to the lamented death of Dr. McKeown.

The Belfast Asylum.

The Belfast papers have recently contained articles by Mr. W. E. Ellis, Local Government Board auditor, concerning the Belfast Asylum, and by the resident superintendent, Dr. W. Graham. The matters in dispute are in reference to the form of paying orders, financial matters, and the question of dietary, whether it should be a rigid or an elastic one. Dr. Graham brings forward strong arguments in support of the dietary being elastic so as to adjust the amount of food to the varying appetite and his committee is wisely in favour of the view that in matters of food the resident medical superintendent should have the fullest discretion to meet varying and special circumstances.

The Chair of Pathology in Queen's College, Belfast.

Considerable surprise is felt in medical circles in Belfast at the prolonged delay in publicly announcing the vacancy in the chair of pathology. Not only has Dr. J. Lorrain Smith resigned but he has left Belfast and given his opening address at the Manchester School. The session in the Belfast Medical School will open on Oct. 18th and as Dr. Lorrain Smith held the appointment of pathologist to the Royal Victoria Hospital the board of management (with which the appointment rests) will have to choose his successor so as to begin work at once. There is a strong feeling, especially among the younger members of the staff of the Royal Victoria Hospital, that the new hospital pathologist will have to give more attention to the clinical bearings of pathology, so as to be of immediate help as to the nature of a tumour during an operation and also to assist more in such questions as the verification by cultures, &c., of the efficiency or not of the measures adopted for the perfection of surgical technique. Up to the present (Oct. 3rd) no official announcement as to the chair has appeared in the Belfast papers (as is usually the case), saying up to what date candidates may apply.

Oct. 3rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Charitable Bequests.

THE authorities of the Assistance Publique have been authorised by decree to accept a bequest of about 1,100,000 francs (£44,000) which has been left by M. de Valencourt for the purpose of building a clinic in connexion with the Paris Faculty of Medicine. The clinic, which will bear the name of the founder, will probably be established in proximity to the Hôpital de la Charité. In accordance with a wish expressed by the founder the director of the Assistance Publique will on this point consult the dean of the Faculty of Medicine.—Another bequest of about 4,000,000 francs (£160,000) has been left by General Count Roguet to found a hospice and an orphanage. The erection of the buildings, which have cost 1,500,000 francs, has just been completed. Accommodation is provided for 60 aged persons and 60 orphans, and the department of the Seine will appoint one-third of the inmates. The conditions of admission have been drawn up by the administrative committee of the foundation and have been approved by the prefect. Admission rests with this committee, which has the Mayor of Clichy for its president and is composed of two members of the municipal council of Clichy and of four delegates nominated by the prefect, two of them being members of the general council of the Seine. The institution is now in working order.

The Production and Distribution of Vaccine Lymph.

The Prefect of the Seine has just appointed, as from August 8th, a commission for the supervision and control of establishments for the production and distribution of vaccine lymph in Paris and the department of the Seine. This commission is composed of the general secretary of the Prefecture of the Seine, of M. Chantemesse and M. Roux, members of the Academy of Medicine, and of the director of the veterinary service of the Seine. The secretaries will be M. Calland and M. Juillerat, chief clerks in the Prefecture of the Seine and administrative secretaries of the Comité d'hygiène et de salubrité de la Seine.

Prevention of Tuberculosis.

The French Association of Male and Female Teachers has resolved to establish a sanatorium for tuberculous patients and building operations have already commenced. The site is on the slope of the Puy Gaudy, near Guéret.

Physical Development of School Children.

An excellent system which was introduced last year in the Lycée Louis-le-Grand will be followed in all the lycées when they re-open. The weight, height, and chest measurement of all the pupils will be taken every three months in order that their physical development and the state of their health may be estimated. The results will be entered upon cards which will be sent to the relatives of the pupils.

Société d'Hygiène de l'Enfance.

This society is offering prizes for essays on the hygienic effects of children's games. Manuscripts will be received up to, but not later than, Dec. 31st, 1904. They must not have been previously published and must be written in French, German, English, Italian, or Spanish. They

must not be signed with a name but are to be marked at the top with a motto or inscription which is to be repeated on a sealed envelope containing the name and address of the author. Any author who cannot establish his identity will be excluded from the competition. The essays will not be returned—not even those which fail to obtain a prize; they become the property of the society and cannot be published by their authors. The society reserves the right of taking from the best of them materials for a pamphlet promulgating its views. The prizes will be awarded at the annual public meeting in 1905. They will consist of gold, silver gilt, silver, and bronze medals, and honourable mentions. Essays must be sent before Dec. 31st, 1904, to Dr. Chassaing, president of the Société d'Hygiène de l'Enfance, 8, Rue Saint Antoine, Paris.

Oct. 4th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The German Association for Public Health.

THE German Association for Public Health recently held its annual meeting at Dantzic, in West Prussia, Herr Tuss, mayor of Kiel, being in the chair. The Prevention of Dysentery formed the first subject of discussion. Professor Kruse (Bonn) said that dysentery, which had almost disappeared from Germany for several years, had again become somewhat prevalent. The disease was caused by several species of micro-organisms which were present in the bowels but were not yet sufficiently investigated. It seldom spread in well-sewered towns. Epidemics nearly always occurred in the spring or autumn but the sporadic cases which were met with at other periods of the year were also very important because they might be the starting point of epidemics. Cool weather hindered and hot weather favoured the development of an epidemic. Hygienic measures had hitherto been found of little use and in certain localities, as, for instance, in the district of Gumbinnen in East Prussia and in the mining districts of Westphalia, the disease had recently become endemic. The public authorities ought to take means to encourage the study of the disease; when its pathology was ascertained there would be a prospect of devising methods of prevention and successful treatment just as in the case of diphtheria. Dr. Döpner (Gumbinnen) said that his experience was to the effect that prompt isolation of the first cases was essential. Children belonging to families in which cases of dysentery had made their appearance ought not to be allowed to attend school. Public meetings, army manœuvres, and other gatherings at which great numbers of people would probably be present ought to be prohibited in districts where dysentery prevailed. Dr. Gaertner, professor of hygiene at Jena, said that the virus of dysentery was introduced into the gastro-intestinal canal not by the air or by direct contagion but by substances contaminated by the fæces of patients suffering from the disease. The patient himself was dangerous to others and strict isolation was therefore most important. Women especially should be instructed to take every precaution in disposing of the fæces of children suffering from the disease.—Another subject which gave rise to an interesting discussion was the Training and Organisation of Nurses. Dr. Mugdan, member of the German Parliament, expressed the opinion that a class of registered female nurses and male attendants should be created and that the title of "licensed nurses" should be restricted to them exclusively. Only those nurses who had passed a State examination ought to be licensed and when incapacitated by illness, accident, or old age they ought to be provided for under a system similar to that of the workmen's insurance laws. For nurses belonging to religious orders special provisions were necessary. For the support of sick, injured, and aged nurses private funds were quite inadequate. The creation and management of a competent and well-trained nursing staff must not be left to private initiative but was really a matter for legislation. Professor George Meyer said that male attendants were often indispensable in cases where physical strength had to be exerted and sometimes for reasons of morality. He said that the duration of the training must be at least two years, of which six months should be spent in theoretical study. Herr Pütter, the superintendent of the Charité Hospital, alluded to the question of male nursing. He said that he had just returned from Scandinavia where he had visited the principal hospitals and had found that in Scandinavia male attendants did not exist at all. Their absence seemed not to have been felt and public opinion was not opposed to the employment of female nurses exclusively. The male attendants in the Charité Hospital and also in the other Berlin hospitals were not altogether satisfactory and applicants for such positions were men of an inferior class. With regard to the compulsory State licence, he said that even now the number of nurses was insufficient and would become still more so if a State examination were required. Professor Petersen (Kiel) said that he was opposed to the proposed examination of nurses. One of the most desirable qualities of a nurse was a kind and sympathetic disposition, and this could not be ascertained by a State licence. He had often observed that very good probationers had failed in an examination. Moreover, a nurse might be extremely competent in a special branch of nursing although unfitted for ordinary nursing. For these specialists a general examination would mean their withdrawal from nursing work. Dr. Freymuth (Dantzic) expressed the opinion that the introduction of licences would have the good effect of eliminating so-called nurses who were totally ignorant of their work and were sometimes of a low moral standard.

Training of Public Disinfectors.

According to a report published in the *Vossische Zeitung* the training schools for disinfectors established a year ago have proved very useful, the pupils being now better trained than under the previous system, according to which they received instruction only from the district medical officer of health. There were 14 training schools where 60 courses of instruction were given during last year, the number of pupils being 601, of whom 585 obtained certificates of competency as disinfectors. The duration of each course was nine days and only ten pupils were received at one time, the age of admission being not over 45 years. Special training in disinfection is provided for nurses. The Minister of Public Instruction, as chief of the Government medical department, has requested local authorities to appoint in each town at least one registered disinfector (and a proportionate number for the rural districts) to undertake the disinfection of dwellings when required by the medical officer of health.

Oct. 4th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Association of American Medical Colleges.

THE annual meeting of this association is an important event in the history of medical education in this country. 44 medical colleges are thus brought into harmonious coöperation and every year witnesses a higher grade of scholarship in all of the colleges. The association was organised in 1890 and for a time a large number of the smaller colleges refrained from joining it, not wishing to be required to conform with the rules and regulations which it might adopt. Now, however, these schools are anxious to be known as members of the association on account of the reputation for regularity which such membership confers. In the discussions which occurred the low standard of medical education in this country compared with foreign countries was attributed to the excessive number of graduates which our schools annually permit by having low standards of qualification. The percentage of physicians to population is higher than in any other civilised country and twice that of Great Britain. The remedy was decided to be twofold—viz., (1) a much higher grade of educational qualification for students on admission; and (2) a longer term of study. Both of these propositions were approved. To secure these reforms a committee was appointed to coöperate with a similar committee appointed by the National Confederation of State Examining and Licensing Boards for the purpose of presenting a minimum standard of medical education, together with such recommendations as the committee may deem proper as to the division of the subjects in a four years' course.

The Statistics of Suicide.

Some recent statistics of suicide in this country are of general interest. It appears that suicide is twice as frequent now compared with ten years ago. Poisoning has superseded shooting, the most frequent poison selected being carbolic acid which is employed in five out of every six

cases of suicide by poisons. The increase in suicides from 1891 to 1897 was from 3531 in the former period to 6600 in the latter. The statistics do not prove that city life causes more suicides than country life, the proportions being about the same. Formerly the suicides of men were in greater proportion than those of women but in later years the proportion has been diminishing. At the present time the suicides of females even exceed those of males between the ages of ten and 25 years. Half a century ago five times as many men committed suicide as women, but during the last quarter of a century the proportion has changed to three men to one woman. Within the last three years the ratio has changed to 2·5 men to one woman. The statistics of suicides in the professions are very discouraging to the medical profession, for it is found that during the past 13 years 535 physicians, 98 clergymen, and 61 lawyers have taken their own lives.

Execution by Electricity.

The frequent failure of electrocution is causing considerable comment in medical circles. It has been found that different convicts require a different number of volts to produce the same results. One convict received 1750 volts and recovered and then he received 1900 volts without fatal effect. Recently a condemned man received a shock of 1700 volts which was continued for 30 seconds without causing death This number had to be repeated four times before he was declared to be dead. The explanation made in the latter case was that the criminal was very thin and his body was a poor conductor, and also that his hair was thick and oily. It has been suggested by physicians who have witnessed these executions that very many criminals who have been electrocuted might be restored if proper efforts were made immediately. The sure death in many cases is believed to be due to the necropsy, which is at once made, and not to the electrical shock.

A United States Laboratory in New York.

The Bureau of Chemistry of the National Department of Agriculture is about to establish a laboratory in New York for the examination of imported foods and the detection of adulterations and imperfections. The occasion which led the national authorities to create this laboratory was the result of a recent investigation which proved that in the last two months three shiploads of food products imported here were returned to the ports from where they came on account of the adulterations found. One of these shipments was a cargo of cheese from Germany. The new law requiring a thorough examination of the food products imported into this country is being rigidly enforced and this new laboratory is a proof that the investigation is to be on a large scale.

Effects of Food containing Boric Acid.

Professor Wiley of the Department of Agriculture has performed many experiments, testing the effects of boric acid when mixed with foods, with important results. We note the following: When boric acid or its equivalent in borax is taken in food in quantities not exceeding half a grain daily, no immediate effects are observed; in time, however, loss of appetite occurs and there is a feeling of fulness in the head with gastric discomfort and general ill-feeling. But these symptoms are noticed only in very sensitive persons when this amount is given. When the drug is given in larger and increasing doses the symptoms are more severe and are developed earlier; the most persistent symptoms are headache and a slight mental confusion. The amount of boric acid required to produce marked symptoms varies greatly with different individuals; in some, one or two grains daily produce decided distress while in others three grains daily cause little if any discomfort. The conclusions reached were that it is not advisable to use borax in articles of food intended for common and continued use and that when placed in foods used only occasionally and in small amounts the quantity of the preservative should be stated plainly so that the consumer may know the amount and the kind of adulteration he is taking.

Results of the Abolition of the Army Canteen.

The long struggle which ended in the abolition of the army canteen was regarded by temperance reformers as a great triumph for their cause. The canteen was defended by very many army surgeons and chaplains on the ground that as a resort of soldiers, where they could buy a great variety of necessary articles, could get a glass of beer or light wine, and where they could meet for social intercourse, it served to prevent them from visiting common saloons and disorderly houses which always gather about the encampments. Facts are beginning to accumulate showing that the canteen was a deterrent from the former practice of soldiers spending their time and money in low resorts. The Paymaster-General's Department of the regular army reports that since the abolition of the army post exchange or canteen, as it is familiarly called, the savings of the soldiers deposited with the paymaster's office have shrunk nearly $2,000,000. The army officers and the persons intimately connected with the army are of the opinion that the money which was formerly stored away now goes in wild debauches to the dens, "joints," and vile resorts which have grown up in large numbers on the outskirts of all army barracks and camps since the passage of the law which forbade the sale of beer and light wines in the camps.

Railway Casualties in the United States.

The Interstate Commerce Commission reports that in the year ending June 30th, 1903, the number of persons killed by railroad accidents in the United States was 9840 and the number injured was 76,553, making a total of 86,393 casualties. One employé in every 364 was killed and one in every 22 was injured. These statistics compare favourably with those given by British authorities. England had 22,152 miles of railway in 1903 and the casualties in the United Kingdom per 1000 miles were 831·6; the United States had 202,471 miles of railway and the casualties per 1000 miles were 268·6.

Sept. 20th.

VISIT OF FRENCH PHYSICIANS AND SURGEONS TO LONDON, OCTOBER, 1904.

OUR French colleagues on the occasion of their visit to London next week will be accompanied by M. Mesureur, Directeur de l'Assistance Publique de Paris, who desires to become acquainted with the methods of administration of our hospitals. Doubtless every facility will be afforded to him in this respect. We publish below a diary of the arrangements (subject of course to any necessary revision) made in connexion with the visit.

SUNDAY, OCT. 9TH.

8.30 P.M.—Reception by the London Executive Committee at the Hotel Russell, Russell-square.

MONDAY, OCT. 10TH.

10 A.M.—Royal College of Surgeons of England. Reception by the President and the Council. Inspection of the College Museum, including the Hunterian collection.—Visitors will be received at Charing Cross Hospital and King's College Hospital after the reception at the Royal College of Surgeons.

12 NOON.—Luncheon at the Imperial Restaurant, Regent-street, given by the Editors of THE LANCET to 50 French visitors.

2 P.M.—Visit to St. Bartholomew's Hospital. Visitors will also be received at the National Hospital for the Paralysed and Epileptic, 2 P.M.; the Hospital for Sick Children, Great Ormond-street, 2 P.M.; Royal Free Hospital, 2 P.M.; the West London Hospital and Post-graduate College, 2.30 P.M.; the London School of Tropical Medicine, 3 P.M.; and the Medical Graduates' College, 4 P.M.

9.30 P.M.—Reception by Dr. and Mrs. J. Dundas Grant.

TUESDAY, OCT. 11TH.

9.30 A.M.—Visit to the French Hospital.

10 A.M.—Visit to the laboratories of the University of London.—The Conservator of the Royal College of Surgeons Museum will be glad to receive any visitors who may wish to pay a second visit.—Visits to Charing Cross Hospital, King's College Hospital, St. Mary's Hospital, Queen Charlotte's Lying-in Hospital, the Royal London Ophthalmic Hospital, and the Islington Infirmary, Highgate.

12 NOON.—Reception by the Dean of the Faculty of Medicine of the University of London and Mrs. Butlin at a déjeuner at the Whitehall Rooms, Hôtel Métropole.

2 P.M.—Visits to Guy's Hospital, St. Thomas's Hospital, Middlesex Hospital, and the Alexandra Hospital for Children with Hip Disease.

2.30 P.M.—Visits to the Samaritan Free Hospital for Women and Children, St. Mark's Hospital for Fistula, and the West London Hospital.

4 P.M.—Visit to the Medical Graduates' College.

WEDNESDAY, OCT. 12TH.

10 A.M.—Visit to the Imperial Cancer Laboratories, the Lister Institute of Preventive Medicine, Charing Cross Hospital, King's College Hospital, Chelsea Hospital for Women, and the Royal College of Surgeons Museum.

11.45 A.M.—Train from Liverpool-street Station to visit the Pathological Laboratory of the London County Council Asylums at Claybury (limited to a party of 30 visitors).

1.30 P.M.—Visit to the Royal Free Hospital.

2 P.M.—Visits to the London Hospital, St. George's Hospital, University College Hospital, and St. Peter's Hospital for Stone.

2.30 P.M.—Visit to the Hospital for Consumption and Diseases of the Chest, Brompton, the Victoria Hospital for Children, and the West London Hospital.

4 P.M.—Visit to the Medical Graduates' College.

4.30 P.M.—Meeting of the Dermatological Society of London at 11, Chandos-street, Cavendish-square.

7.15 P.M.—Banquet offered to all the visitors by the London Executive Committee at the Hotel Cecil, Strand.

The following additional subscriptions have been received:—

	Subscriptions. £ s. d.	Further guarantees. £ s. d.
Mr. Malcolm McHardy	5 5 0	—
Mr. J. Tweedy	5 5 0	—
Mr. Thomas H. Wakley	5 5 0	—
Mr. Ballance	4 4 0	—
Dr. H. F. Champneys	4 4 0	—
Mr. Watson Cheyne	4 4 0	—
Mr. Stanley Boyd	3 3 0	—
Mr. D. H. Goodsall	3 3 0	—
Mr. A. Pearce Gould	3 3 0	—
Sir Hermann Weber	3 3 0	—
Mrs. Garrett Anderson, M.D.	2 2 0	3 3 0
Dr. G. Granville Bantock	2 2 0	1 1 0
Mr. Arthur E. J. Barker	2 2 0	2 2 0
Mr. H. L. Barnard	2 2 0	—
Dr. E. F. Bashford	2 2 0	1 1 0
Dr. Charlton Bastian	2 2 0	3 3 0
Dr. Frederick E. Batten	—	2 2 0
Dr. E. Clifford Beale	2 2 0	—
Dr. Charles E. Beevor	2 2 0	—
Sir William Bennett	2 2 0	5 5 0
Dr. G. H. A. Comyns Berkeley	2 2 0	—
Mr. J. Berry	2 2 0	3 3 0
Dr. Percy Boulton	2 2 0	1 1 0
Mr. A. A. Bowlby	2 2 0	2 2 0
Dr. Brailey	2 2 0	0 10 6
Dr. T. Buzzard	2 2 0	3 3 0
Dr. Caley	2 2 0	1 1 0
Dr. J. Walter Carr	2 2 0	—
Dr. George Catheart	2 2 0	1 1 0
Dr. W. B. Cheadle	2 2 0	5 5 0
Sir William S. Church	2 2 0	5 5 0
Mr. H. H. Clutton	2 2 0	3 3 0
Sir Alfred Cooper	2 2 0	3 3 0
Dr. C. J. Cullingworth	2 2 0	—
Dr. W. R. Dakin	2 2 0	2 2 0
Dr. Norman Dalton	2 2 0	1 1 0
Dr. Davis	2 2 0	—
Mr. Clinton T. Dent	2 2 0	—
Mr. A. H. G. Doran	2 2 0	—
Dr. A. Eddowes	2 2 0	—
Dr. T. W. Eden	2 2 0	—
Mr. F. Swinford Edwards	2 2 0	3 3 0
Dr. E. Laming Evans	2 2 0	—
Mr. H. Fenwick	2 2 0	3 3 0
Mr. Percy Flemming	2 2 0	—
Dr. Philip Frank	2 2 0	3 3 0
Mr. P. J. Freyer	2 2 0	3 3 0
Mr. F. J. Gant	2 2 0	—
Dr. Archibald E. Garrod	2 2 0	—
Dr. J. Gay	2 2 0	—
Dr. J. H. Gibson	2 2 0	3 3 0
Mr. R. J. Godlee	2 2 0	—
Dr. J. F. Goodhart	2 2 0	3 3 0
Sir William Gowers	2 2 0	—
Dr. Alfred Gubb	2 2 0	—
Mr. Gunn	2 2 0	3 3 0
Dr. Haig	2 2 0	—
Dr. M. Handfield-Jones	2 2 0	—
Mr. Reginald Harrison	2 2 0	3 3 0
Dr. F. de Havilland Hall	2 2 0	—
Dr. Herbert Hawkins	2 2 0	—
Mr. Charles J. Heath	2 2 0	—
Dr. Lenton Heath	2 2 0	—
Dr. G. E. Herman	2 2 0	3 3 0
Dr. W. P. Herringham	2 2 0	3 3 0
Dr. J. Hewitt	2 2 0	—
Dr. Horrocks	2 2 0	—
Dr. Henry G. Howse	—	2 2 0
Mr. J. Hutchinson	2 2 0	3 3 0
Mr. J. Hutchinson, jun.	2 2 0	—
Dr. J. Hughlings Jackson	2 2 0	3 3 0
Mr. W. H. H. Jessop	2 2 0	3 3 0
Dr. Boyd B. Joll	2 2 0	—
Dr. Robert Jones	2 2 0	—
Mr. C. B. Keetley	2 2 0	—
Mr. T. H. Kellock	2 2 0	—
Mr. H. W. Kiallmark	2 2 0	—
Dr. Percy Kidd	2 2 0	—
Sir John Kirk	2 2 0	2 2 0
Mr. W. Arbuthnot Lane	2 2 0	3 3 0
Dr. W. Lang	2 2 0	1 1 0
Mr. J. Langton	2 2 0	2 2 0
Mr. J. B. Lawford	2 2 0	—
Dr. Liveing	2 2 0	—
Mr. Lockwood	2 2 0	3 3 0
Mr. Clement Lucas	2 2 0	3 3 0
Dr. A. P. Luff	2 2 0	—
Mr. J. McCarthy	2 2 0	—
Dr. H. J. Macevoy	2 2 0	—
Sir Stephen Mackenzie	2 2 0	—
Dr. Macnamara	2 2 0	—
Sir Patrick Manson	2 2 0	—
Professor Howard Marsh	2 2 0	—
Mr. E. G. Moon	2 2 0	—
Mr. J. H. Morgan	2 2 0	—
Mr. M. Morris	2 2 0	3 3 0
Dr. F. W. Mott	2 2 0	—
Mr. C. W. Mansell Moullin	2 2 0	—
Mr. T. W. Nunn	2 2 0	—
Dr. Ormerod	2 2 0	—
Mr. Edmund Owen	2 2 0	3 3 0
Mr. Herbert Page	2 2 0	3 3 0
Dr. F. G. Penrose	2 2 0	—
Mr. George Pernet	2 2 0	—
Dr. Rivers Pollock	2 2 0	—
Dr. Fitzgerald Powell	2 2 0	—
Dr. Pringle	2 2 0	3 3 0
Dr. Urban Pritchard	2 2 0	—
Dr. Rhodes	2 2 0	—
Mr. H. Betham Robinson	2 2 0	3 3 0
Mr. Mayo Robson	2 2 0	—
Dr. Routh	2 2 0	3 3 0
Mr. Charles Ryall	2 2 0	3 3 0
Dr. A. E. Sansom	2 2 0	—
Dr. G. H. Savage	2 2 0	—
Dr. T. D. Savill	2 2 0	1 1 0
Mrs. Scharlieb, M.D.	2 2 0	—
Dr. G. Schorstein	2 2 0	3 3 0
Dr. S. J. Sharkey	2 2 0	3 3 0
Dr. Lauriston E. Shaw	2 2 0	—
Mr. Arthur Shillitoe	2 2 0	—
Dr. W. J. R. Simpson	2 2 0	—
Dr. Percy Smith	2 2 0	—
Sir Thomas Smith	2 2 0	3 3 0
Dr. Herbert Spencer	2 2 0	3 3 0
Mr. George Stoker	2 2 0	—
Dr. S. P. Sunderland	2 2 0	2 2 0
Dr. Charters J. Symonds	2 2 0	3 3 0
Dr. W. H. Tate	2 2 0	—
Dr. James Taylor	2 2 0	2 2 0
Dr. StClair Thomson	2 2 0	1 1 0
Dr. H. G. Turney	2 2 0	—
Sir John Tyler	2 2 0	3 3 0
Dr. W. J. Tyson	2 2 0	—
Dr. Albert J. Venn	2 2 0	3 3 0
Dr. Vintras	2 2 0	—
Mr. Waggett	2 2 0	—
Mr. Cuthbert Wallace	2 2 0	2 2 0
Mr. F. C. Wallis	2 2 0	—
Dr. Parkes Weber	2 2 0	1 1 0
Dr. A. Whitfield	2 2 0	—
Dr. Leonard Williams	2 2 0	—
Dr. T. Outterson Wood	2 2 0	3 3 0
Mr. H. Batty Shaw	1 1 0	—
Dr. Stanaly	1 1 0	—

Sir Thomas Barlow, Bart., 10, Wimpole-street, W., and Dr. J. Dundas Grant, 18, Cavendish-square, W., are the treasurers and Dr. Dawson Williams, 2, Agar-street, Strand, W.C., and Dr. W. Jobson Horne, 27, New Cavendish-street, W., are the secretaries.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At the examinations held in September the following candidates passed in the subjects indicated:—

Surgery.—C. C. Bernard (Section II.), Royal Free Hospital; and A. Innes (Sections I. and II.), Glasgow.

Medicine.—J. A. Davies (Sections I. and II.), Manchester; A. Innes (Sections I. and II.), Glasgow; W. A. T. Lloyd (Sections I. and II.) and T. R. Roberts (Section I.), London Hospital; and H. P. Shanks, St. Bartholomew's Hospital.

Forensic Medicine.—J. Bromley, Guy's Hospital; J. A. Davies, Manchester; A. Innes, Glasgow; J. M. Lynch, Cork; and L. W. Roberts, Middlesex Hospital.

Midwifery.—E. J. Blewitt, London Hospital; E. J. Crew, Guy's Hospital; A. Innes, Glasgow; J. M. Lynch, Cork; M. B. Potts, Leeds; and A. R. Wade, St. Bartholomew's Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: C. C. Bernard, J. Bromley, A. Innes, M. B. Potts, and H. P. Shanks.

UNIVERSITY OF GLASGOW.—The following candidates have passed the first professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (B., Botany; Z., Zoology; P., Physics; C., Chemistry):—

Archibald Aitchison (C.), David Anderson (C.), James George Anderson (B., P.), William Anderson (Z.,* C.), Thomas Archibald (B., P.), William Hunter Stirling Armstrong (B., Z.), Alexander Ballantyne (B., Z., C.), Willaim Barr (B., P., C.), Charles Bennett (B., P.), Robert Rankin Bow (Z.,* C.*), Charles Brash (Z., C.), William Barrie Brownlie (B., P.), David Young Buchanan (B.,* P., C.), John Adam Gib Burton (B.), Hector Mackay Calder (B., Z., C.), John Cameron (C.), Donald James Clark (B., P., C.), James Lang Cochrane (B.), Alexander Johnston Couper (C.), Rutherford Cramb (B.), John Cruickshank (B.,* P.*), James Cowie Dick (C.), Charles Duguid (B.), William Hunter Duncan (Z.), Philip Figdor (B.), Robert Dunlop Black Frew (B., Z.), David Gibson (B.), Alexander Gordon Gilchrist (B., P.), Walter Gilmour (B., P.*), George Stevenson Gordon (B., P.), Hugh Macvicar Gossman (C.), Edward O'Driscoll Graham (B., C.), John Granger (B., P.), George Haddow (B.), William Hamilton (P., C.), Michael Harkin (B., Z., P., C.), John Primrose Hay (B., Z.), John M'Lean Hendry (B., Z.), Stephen John Henry (B., P.), James Hall Hislop (C.), William Alexander Hislop (B.), Colin Hunter (B.), Cochran Johnston (B., Z.), Walter Hermann Kiep (B., Z., P., C.*), John Parlane Kinloch (B.), David Neilson Knox (B., P.), John Lang (B., P.), George Smith Livingston (Z.), William Charles Macartney (B.), Frank Crombie Macaulay (B.,* P.), Robert M'Carlie (B.), William M'Connell (B., P.), Donald M'Dougall (B., Z.), Neil MacInnes, M.A. (C.), William M'Kendrick (B., Z.*), Francis William Mackichan (Z., C.), Thomas Mackinlay (B., P.), Alexander M'Kinnon (B., P.), John James Mackintosh (B., Z.), John MacMillan (Z., C.), Peter Russell M'Naught (B.,* P.*), John William M'Nee (B., P.*), Murdo MacPhail (B., Z., C.), Thomas Marlin (B., P.), W. Aubrey Layard Marriott (B.), Frank Needham Marsh (B.,* P.), David Rogerson Mathieson (B.), Donald Meek (B., Z.), William Spence Melville (B.), Kenneth Chisholm Middlemiss (B., P.), Robert Stewart Miller (P.), John Mowat (B., Z.), William Aikman Muir (B., C.*), Charles Sutherland M'Kay Murison (Z.), Charles Allison Murray (B.), Watson Noble (B., P.), Bernhardt Papiermeister (B., Z.), Albert Rutherford Paterson (B.,* P.*), Adam Patrick, M.A. (C.), Murray Purvis (B., P.), Edward Quigley (B., C.), Richard Rae (C.), Henry Nimmo Rankin (B., Z., P., C.), Nicol M'Nicoll Rankin (P., C.), John Robertson (Z.), Robert Charles Robertson (B., P.), Alfred Roemmele (B., P.), William Wilson Rorke (B., P.*), William Rutherford (B., P.), Robert Ephraim Selby (C.), William Alexander Sewell (B., P.), James Brown Sim (B., C.), James Johnston Sinclair (B.), James Stewart Somerville (B.), Alexander Stewart (B.), Donald Stewart (B., Z.), Edward Ernest Stewart (B., P., C.), Robert Wilson Sutherland (B., P.), David Taylor (B., P.), Duncan Macnab Taylor (B., P.), David Alexander Thomson, M.A. (Z.,* P.*), John Sheddon Thomson (B., P.), Arthur Turnbull (B., C.), Robert M'Nair Walker (B., P.), William Samuel Waterhouse (B.), Tom Paul Watson (Z., C.), Harold Wellwood (Z., C.), James Brown Whitfield (B., P.), William Crowley Whittingham (B., P.), Charles Percival Williamson (C.), John Alexander Wilson (B., P.), Henry Joseph Windsor (B., P.), Hugh Young (Z., C.), and John Young (Z., C.*).

Women.—Mabel Foley (B., Z.), Euphemia Adamson Hay (B., Z.), Ella Smith Hill, M.A. (B., Z.), Jeanie Walker Jones (B., Z.), Honoria Somerville Keer (B., Z.), Janet Annie Macvea (B.), Mary Cochran Mitchell (B., Z.), Flora Morrison (C.), Jessie Deans Rankin (B., Z., C.), Olive Robertson (C.), Winifred Margaret Ross (B., Z., C.), Jessie Capie Russell (B., Z.), Margaret Elizabeth Rutherford (P.), Jemima Wallace (B.), and Ethelwyn Mary Walters (B., Z.).

The following have passed the second professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (A., anatomy; P., physiology; M., materia medica and therapeutics):—

James Montgomery Anderson (A.P.), John Anderson, M.A., B.Sc. (A., P.,* M.), Thomas Barbour, B.Sc. (M.), William Rome Cammock (A., P., M.), George Campbell (A., P., M.), John Sawers Clark, M.A. (M.), Thomas Lawson Craig (M.), Robert Donald (A., P., M.), James Richan Drever, M.A. (A., P., M.), Richard John Driscoll (P.), James Dunbar (P.), Ernest Milne Eaton (M.), William Miller Fairlie (P.), John Ferguson (A., P., M.), Thomas Henderson Forrest (A.), James Wilfred Georgeson (A., M.), William Gillilan (A., P., M.), Arnold Harris Gray (M.), William Towers Hardie (P., M.), Lawrence Hislop (A.), John Keys (M.), James Dunlop Kidd (M.), James Towers Kirkland (A.), Robert Wright Leckie (M.), George Ligertwood (P.), Ernest Bowman Macaulay (A.), Alexander M'Call (A., M.), Thomas M'Cririck, M.A., B.Sc. (A., P.), William Anderson M'Kellar (A., P.), Murdo Duncan Mackenzie (A., P.), Alister Argyle Campbell M'Neill (M.), Robert Marshall (M.), Allan Frederick Miller (A.), James Robertson Mitchell (A., P., M.), Peter Mitchell, M.A. (M.*), Robert Wright Mitchell (P.), James Hogg Paul (M.), Arthur Geoghegan Paxton (A.), Daniel M'Kinlay Reid (P., M.), Murdoch Mann Rodger (P.), Alfred Cecil Sharp (M.), James Charles Donaldson Simpson (A.), James John Sinclair (M.), William Smellie (M.), John Stevenson (M.), John Torrance Weir Stewart (P.), Robert Todd (A., P.), Martin Turnbull (A.), George Wallace (A.), Hugh Ferguson Watson (P.), Hugh White (A., P.), David John Williams (A., P.), Thomas Winning, M.A. (P.), and Moses Youdelevitz (M.).

Women.—Jeannie Montgomery Andrew (M.), Annie Rennie Hird (P.), Katharine Robina Margaret Lucas (M.), Edith Oversby (A.), Vera Dagmar Reis (M.), and Margaret Baillie Taylor (A.).

The following have passed the third professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (P., pathology; M., medical jurisprudence and public health):—

Andrew Blair Aitken (M.), George Allison Allan (M.), Andrew Woodroffe Anderson (P.), John Bain, M.A. (P., M.), George Thomson Bogie (M.), Charles Burns (P.), John Miller Hopkins Caldwell (P.), Donald Livingstone Carmichael (M.), Charles Game Angus Chislett (P.), John Shaw Dunn, M.A. (M.), William Gilchrist (P., M.), John Isdale Greig, M.A., B.Sc. (P., M.), William Grier (M.), John Hammond (P.), Charles Francis Dyer Hammond (P.), James Duncan Hart (M.), Frank Hauxwell (M.), Robert M'Cowan Hill (M.), Ralph Vincent Howell (P.), Alexander Hunter (P.), David Guthrie Hunter, M.A. (P., M.), James Hunter (M.), Archibald Yuill Hutchison (M.), Harry Stewart Hutchison, B.Sc. (P., M.), Arnold Ernest Jones (P., M.), George Notman Kirkwood (M.), Alexander Leggat (P., M.), Thomas M'Cosh (M.), Duncan M'Ewan (M.) John Macintyre (P.), William Macleod (M.), John M'Millan (P., M.), Hugh MacNaught (M.), Norman Smith MacNaughtan (M.), Richard Cameron Macpherson (P., M.), William Blair Morton Martin (P.,* M.*), Robert May (P., M.), Henry Joseph Milligan (P.), Gavin Denholme Muir (P.), John Dunn Nisbet (P.), Patrick Joseph O'Hare (M.), Thomas Hood Rankin (P.), Thomas Thomson Rankin (M.), John Reid (P.), William Rolland (M.), John Cooper Russell, M.A. (P., M.), Edward Louis Augustin Sieger (P.), Arthur Anderson Stewart (M.), Daniel Stewart (P., M.), John Logan Stewart, M.A. (P., M.), Joseph Roderick Sutherland (P., M.), Thomas Thom (M.), William Lind Walker, M.A. (M.), Alexander MacMillan Watson (P.), and James Wyper (M.).

Women.—Jeannie Thomson Clark (M.), Elizabeth Maud M'Vail (M.*), Jessie Deans Rankin, M.A., B.Sc. (M.), Jane Reid Shaw (P.), Mary Spence (P.), and Christina Gibson Thomlinson (M.).

* Passed with distinction in the subjects indicated.

FOREIGN UNIVERSITY INTELLIGENCE.—*Amsterdam:* Dr. J. Boeke has been recognised as *privat-docent* of Embryology and Histogeny.—*Berlin:* Dr. Otto Hildebrand of Basle has been appointed to the chair of Surgery vacated by the resignation of Professor König.—*Bonn:* Dr. A. Wesphal of Greifswald has been appointed to the chair of Psychiatry, in succession to Dr. Pelman who is retiring.—*Kieff:* Dr. Szymanowski has been appointed Extraordinary Professor of Ophthalmology in succession to Professor Khodin.—*Lemberg:* Dr. Stanislaus Badzynski has been promoted to the Ordinary Professorship of Hygiene and Dr. Wladimir Sieradski to the Ordinary Professorship of Forensic Medicine.—*Naples:* Dr. Tommaso Senise has been appointed Professor of Internal Pathology.—*Pavia:* Dr. Arturo Marcacci of Palermo has been appointed Professor of Physiology.—*Prague (German University):* Dr. Franz Luksch has been recognised as *privat-docent* of Pathological Anatomy.

UNIVERSITY OF OXFORD: EXAMINATION IN PREVENTIVE MEDICINE AND PUBLIC HEALTH (D.P.H. OXON.).—The names of candidates for this examination, which will commence at 10 A.M. on Tuesday, Nov. 22nd, must be transmitted to the secretary to the Boards of Faculties, Clarendon Building, Broad-street, Oxford, not later than 10.30 A.M. on Tuesday, Nov. 8th. Candidates, who need not be members of the University, must produce evidence of having satisfied the requirements of the General Medical Council relating to diplomas in public health. The examination is in two parts which may be taken together or at separate examinations. The fee for each part is £5. Part I. comprises the applications of chemistry and physics to general hygiene. Part II. comprises the following subjects: general pathology, with special relation to infectious diseases, the law relating to public health, sanitary engineering, and vital statistics. The examinations are conducted partly in writing, partly *viva voce*, and in each subject partly practical.

THE TEACHING OF MASSAGE.—On Oct. 3rd the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, opened a school for the teaching of massage. The arrangements for the establishment of the school have been in the hands of a committee appointed by the medical staff and the board, consisting of the chairman of the hospital, Dr. Risien Russell, and Dr. W. Aldren Turner. The school will be held in the hospital and is under the direction of Madame Gripenwald. Only female pupils have entered for the present term but it is proposed to appoint a male instructor and to take male pupils when a sufficient number shall have entered their names. The chairman of the hospital at the opening of the school, in addressing the pupils, said that the National Hospital had for some years taught massage but that the gradual adoption of the Swedish movements by the medical profession in England had now rendered it necessary to extend the teaching. The National Hospital had appointed a competent Swedish lady to instruct the pupils and to present them for examination, and the object of the medical men who would examine them would be to make sure that they were competent to carry out the instructions which were now commonly given by English physicians to medical rubbers. The hospital would have no interest in giving a certificate to anyone who was not up to the mark, because they hoped ultimately to establish a co-operation of medical rubbers holding the National Hospital certificate and only those who could be relied upon would be

placed upon the list. It may be stated that the fees of the school are £8 8s. per term of three months—i.e., one course. A certain number of the nurses of the hospital will be trained in the school free of charge.

Lord Ludlow has been appointed a member of the weekly board of the Middlesex Hospital.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—The following scholarships have been recently gained: First entrance scholarship (£100), Mr. A. O. English; second entrance scholarship (£60), Mr. P. S. B. Langton; university scholarship (£60), Mr. E. L. Kennaway, B.A. Oxon.; and Freer Lucas scholarship (£126), Mr. E. A. Saunders.

A RUSSIAN CENTENARIAN.—An active centenarian, named Anton Visnevski, lives at the village of Piavno, near Plotsk, says the *Novoe Vremya*. He is alleged to be 105 years of age. He enjoys perfect health, sees well, hears well, and at the present time is engaged at field work.

ROYAL WATERLOO HOSPITAL FOR CHILDREN.—Their Royal Highnesses Prince and Princess Henry of Prussia are among those who are giving support to the greatly extended work of the Royal Waterloo Hospital for Children and Women. Their Royal Highnesses have just written from Kiel expressing deep sympathy with the work and have become annual subscribers of five guineas.

CHARGE AGAINST A VETERINARY SURGEON.—At Cranborne petty sessions held on Sept. 24th a veterinary surgeon of Donhead (Wilts) was summoned at the instance of the Dorset police for giving a false certificate. The certificate in question stated that he had examined 50 lambs which were entered for a sale, but it was proved that he had not done so, and he was fined £12 10s. and costs.

OLD CLOTHES AND INFECTION.—On the initiative of some Warsaw medical men it is proposed to open in various parts of Warsaw, particularly in the poorer quarters, public laundries at which linen will be cleaned at a very low charge. Disinfecting chambers will also be installed and garments bought from old clothes merchants will be disinfected free of charge.

KING'S COLLEGE AND KING'S COLLEGE HOSPITAL (UNIVERSITY OF LONDON).—The following scholarships have been awarded in the Faculty of Medicine: Medical entrance scholarship, £50, E. B. Clayton and A. F. Comyn (equal); Sambrooke scholarship, £100, B. Hughes; two Warneford scholarships, £100 each, T. H. Whittington and G. Matthews; and Epsom scholarship, H. A. Milner.

DONATIONS AND BEQUESTS.—Mrs. Mainwaring Jones has given £1000 for the endowment of a bed in the new wing of Charing Cross Hospital in memory of her husband, Lieutenant-Colonel M. Jones, H.A.C.—By the will of Mr. Charles W. Waters of Streatham the London Hospital, Charing Cross Hospital, University College Hospital, the Royal Free Hospital, and the London Fever Hospital each receive £1000.

TRINITY COLLEGE, DUBLIN.—The school for the medical services, which was started in Trinity College at the beginning of the year and has proved successful at the Royal Army Medical Corps and Indian Medical Service examinations, will commence its second session on Nov. 7th. The object of the school is to enable Irish medical students who desire to adopt the navy or army as a profession to prepare themselves in Ireland.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B. ET FILS, 19, Rue Hautefeuille, Paris.
Les Rayons N et les Rayons N$_1$. Par le Dr. H. Bordier, Professeur agrégé à la Faculté de Médecine de Lyon. Price Fr. 1. 50.

CONSTABLE, ARCHIBALD, AND CO., LIMITED, 16, James-street, Haymarket, London, S.W.
New Methods of Treatment. By Dr. Laumonier. Translated and edited from the second revised and enlarged French edition by H. W. Syers, M.A., M.D. Cantab., Physician to Out-patients Great Northern Central Hospital. Price 3s. 6d. net.
A Short Treatise on Anti-Typhoid Inoculation. Containing an Exposition of the Principles of the Method and a Summary of the Results achieved by its Application. By A. E. Wright, M.D. Univ. of Dublin, late Professor of Pathology, Army Medical School, Netley; Pathologist to St. Mary's Hospital, Paddington, W. Price 3s. 6d. net.
The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By William Henry Battle, F.R.C.S., Surgeon to St. Thomas's Hospital, and Edred M. Corner, M.B., B.C., F.R.C.S., Surgeon-in-Charge of Out-patients to St. Thomas's Hospital. Price 7s. 6d. net.
Clinical and Pathological Observations on Acute Abdominal Diseases due to Conditions of the Alimentary Tract and the Uniformity of their Origin. The Erasmus Wilson Lectures, 1904. By Edred M. Corner, B.Sc. Lond., M.A., M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon to Out-patients; Surgeon to the Physical Exercise Department, St. Thomas's Hospital. Price 3s. 6d. net.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.
Lehrbuch der Physiologie. Von L. Hermann. Dreizehnte, durchgehends umgearbeitete und vermehrte Auflage. Price M.16.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London.
Life of Richard Wagner. By W. Ashton Ellis. Vol. IV.

SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London
CORNISH BROTHERS, LIMITED, 37, New-street, Birmingham.
On the Sterilisation of the Hands: A Bacteriological Inquiry into the Relative Value of Various Agents used in the Disinfection of the Hands. By Charles Leedham-Green, M.B., F.R.C.S., Surgeon to Out-Patients, Queen's Hospital; Surgeon to the Birmingham and Midland Hospital for Children; Assistant Lecturer on Bacteriology, University of Birmingham. Price 2s. 6d. net.

SKEEN, GEORGE J. A., Government Printer, Colombo, Ceylon.
The Medical History of Prisoners of War in Ceylon, 1900-1903. By Allan Perry, M.D., D.P.H., Principal Civil Medical Officer and Inspector-General of Hospitals, Ceylon. Price not stated.

STOCK, ELLIOT, 62, Paternoster-row, E.C.
Municipal Shortcomings. "The Example of Liverpool." A Series of Articles contributed to the *Liverpool Journal of Commerce*. By T. Mydd'elton Shallcross. Price 1s. net.

WILEY, JOHN, AND SONS, New York (CHAPMAN AND HALL, LIMITED, London).
Food Inspection and Analysis. For the Use of Public Analysts Health Officers, Sanitary Chemists, and Food Economists. By Albert E. Leach, S.B., Analyst of the Massachusetts State Board of Health. First edition. First thousand. Price 31s. 6d. net.
The Suppression of Tuberculosis, together with Observations concerning Phthisiogenesis in Man and Animals, and Suggestions concerning the Hygiene of Cow Stables and the Production of Milk for Infant Feeding, with Special Reference to Tuberculosis. By Professor E. von Behring, University of Marburg. Authorised translation by Charles Bolduan, M.D. First edition. First thousand. Price 4s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ABBOTT, CHARLES EDWARD, L.R.C.P., L.M. Irel., M.R.C.S., has been appointed Medical Officer for the Roche and St. Dennis Districts (Cornwall).
ALWAY, W. R., M.B. Toronto, has been appointed Clinical Assistant to the Chelsea Hospital for Women.
ANDERSON, A. W., M.B., Ch.B. St. And., has been appointed Junior House Surgeon to Liverpool Infirmary for Children.
COPE, RICARDO, M.R.C.S., L.R.C.P., has been appointed House Surgeon to the Brighton, Hove, and Preston Dispensary, Northern Branch.
GUNNING, C. J. H., M.R.C.S., L.R.C.P. Lond., has been appointed Second Assistant Medical Officer to the Kensington Infirmary.
JUDSON, A. H., M.D. Toronto, has been appointed Clinical Assistant to the Chelsea Hospital for Women.
LEWIS, J. W., L.R.C.P., L.R.C.S. Edin., L.F.P.S.G., has been appointed Certifying Surgeon under the Factory Act for the Brynamman District of the counties of Carmarthen and Glamorgan.
PRING, H. REGINALD, M.R.C.S., L.R.C.P. Lond., L.D.S., has been appointed Assistant Dental Surgeon to the National Dental Hospital.
SHEPHERD, J. HAY, M.B., Ch.B. Aberd., has been appointed Senior House Surgeon to Liverpool Infirmary for Children.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.
BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Surgeon.
BIRMINGHAM, CONVALESCENT HOSPITAL AND HOME FOR CHILDREN, Moseley Hall.—Honorary Acting Surgeon.
BRECON AND RADNOR LUNATIC ASYLUM, Talgarth, Breconshire.—Medical Superintendent. Salary £450 per annum, with house, light, washing, and garden produce.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100, with board and lodging.

CHARTHAM (NEAR CANTERBURY), KENT COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £140, with board, quarters, attendance, and washing.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon, unmarried. Salary £60 per annum, with board, laundry, and residence.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon, unmarried. Salary £120, with board and lodging.

DEVON COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £150, rising to £200, with board, lodging, and washing.

DEWSBURY SMALL-POX HOSPITAL.—Resident Medical Officer, unmarried.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—House Physician and House Surgeon. Salary £80 respectively, with board, residence, and washing. Also Assistant House Surgeon. Salary £70, with board, residence, and washing.

HOSPITAL FOR WOMEN, Soho-square, W.—House Physician for six months. Salary £30. Also Pathologist and Curator of Museum. Honorarium 50 guineas per annum.

LISTER INSTITUTE OF PREVENTIVE MEDICINE.—Grocers' Research Studentship. Value £150.

METROPOLITAN ASYLUMS BOARD ASYLUM, Darenth, Dartford.—Male Assistant Medical Officer, unmarried. Salary at rate of £150 per annum, rising to £170, with rations, lodging, attendance, and washing.

METROPOLITAN ASYLUMS BOARD FEVER AND SMALL-POX HOSPITALS.—Male Assistant Medical Officers, unmarried. Salary £180 per annum, rising to £240, with board, lodging, attendance, and washing.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Anæsthetist. Honorarium 25 guineas per annum.

MICKLEOVER, DERBY COUNTY ASYLUM.—Senior Assistant Medical Officer. Salary £150, rising to £180 per annum, with apartments, board, washing, and attendance.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Two Resident Medical Officers. Salaries £80 and £70 per annum respectively, with board, residence, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician, also House Surgeon, both for six months. Salaries at rate of 50 guineas a year, with board and residence.

PORTSMOUTH, ROYAL HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, residence, &c.

QUEEN'S JUBILEE HOSPITAL, Earl's Court, S.W.—House Surgeon for six months, renewable. Salary at rate of £52 per annum, with board, residence, and washing.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—House Physician and Casualty House Surgeon (males); also House Physician and House Surgeon (females). All for six months.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Resident Medical Officer for six months. Salary at rate of £120 per annum, with apartments, board, and washing.

ST. GEORGE'S HOSPITAL, S.W.—Physician. Also Assistant Physician.

ST. GEORGE'S UNION INFIRMARY AND WORKHOUSE, Fulham-road, London, S.W.—Medical Superintendent and Medical Officer. Salary £400 per annum, rising to £500, and fees, with house, coals, light, &c.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, washing, and lodging.

TAUNTON, SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, unmarried. Salary £160 per annum, increasing to £200, with apartments, board, fuel, lighting, and washing.

Births, Marriages, and Deaths.

BIRTHS.

COLE.—On Oct. 2nd, at Clarendon square, Leamington, the wife of T. E. Cecil Cole, M.A., M.D. Oxon., of a son.

GOING.—On Sept. 28th, at Erinagh, Littlehampton, the wife of R. M. Going, F.R.C.S. Eng., of a daughter.

MARRIAGES.

JOHNSON—GRIFFITHS.—On Oct. 1st, at St. Peter's, Swinton, Lancashire, John Robert Johnson, M.R.C.S., L.R.C.P., to Ethel, eldest daughter of T. A. Griffiths, of The Gables, Broad Oak-park, Worsley.

LATCHMORE—CRAIG.—At Bristo-place Congregational Church, Edinburgh, on Oct. 5th, by the father of the bride, the Rev. Robert Craig, D.D., assisted by the Rev. John Adam, M.A., Ernest Shillitoe Latchmore, bank manager, Worksop, Notts, to Jane Alice Craig, M.D.

O'HAGAN—EGAN.—On Sept. 27th, at Rathgav Church, Dublin, by the Right Revd. Mons. Fitzpatrick, assisted by the Revd. Fr. Finlay, S.J., Surgeon-Captain O'Hagan, M.B., F.R.C.S.I., of Liverpool, to Edith, eldest daughter of the late Patrick Egan, Esq., of The Hall, Lullamore, and granddaughter of the late Michael Moorehead, M.D., F.R.C.S.

RIDDELL—WILSON.—On Sept. 29th, at St. James's parish church, Dover, Robert George Riddell, M.B., F.R.C.S. Eng., D.P.H., Rotherham, to Annie, daughter of the late James Wilson, Esq.

DEATH.

BOSSEY.—On Sept. 27th, at Mayfield, Redhill, Surrey, Francis Bossey, M.D., F.R.M.S., aged 95 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"COST OF ELECTRIC AUTOMOBILISM."

As we receive from time to time letters on the subject of motor-cars for medical men the following extracts from an article with the above heading, published in the *Engineer* of Sept. 30th, may interest some of our readers. It is written by Mr. Robert H. Smith and contains a variety of diagrams and formulæ.

The necessity of carrying the driving energy in the form of a storage battery makes the weight of the loaded vehicle great in ratio to its passenger or goods-carrying capacity, and this puts a somewhat severe limit to the range of travel away from a charging station. But 80 to 100 miles have been run on a single charge and 30 or 40 miles journeys may be accomplished with fair economy. The greater difficulty is the destructive influence upon the battery of the jolting and vibration unavoidable upon rough roads. The injury is primarily mechanical but the mechanical disintegration is severely detrimental to the efficient electro-chemical action upon which the reproduction in active form of the stored energy depends. ..... If the idea of long rural journeys be recognised as outside the useful sphere of electric automobilism, if its great convenience for urban and suburban traffic be realised, and if systematic organisation of re-charging facilities be effectively taken in hand its advantages over petrol traction will stand out in better relief. The readiness to start without any delay at unexpected times, the avoidance of running the machinery while the car has to wait by the roadside for a few minutes, the ease of safe manipulation by unskilled hands, the smooth and even driving torque which saves so much in hammering and wear of the gearing, the comparative noiselessness, and the absence of smell left floating along the track,—these ought to count a very great deal in civilised urban life. No attempt will be made to make it compete with other forms of road traction for heavy wagon or omnibus loads; but without these there is a large open field in private carriages, cabs, and parcel vans for shop deliveries and postal service. .....

It may also be remarked that the weight of the battery militates against electric automobilism on steep gradients and steep grades also create difficulty with the proper suspension of the battery .....

The ampère-hour capacity per 1 lb. of weight of battery varies from below 4 up to 7½, with a 30 ampère rate of discharge continued until the voltage falls to 1·8. The average voltage is assumed as 2, so that the above 7½ means 15 watt-hours. When the battery is new its efficiency may be 70 or 80 per cent.; but it gradually falls to 50 or 60. The watt-hours required per ton-mile varies most with the up or down gradient, but also very greatly with the head or side wind, and with the style and muddy or sandy condition of the road surface. It must also depend greatly upon the kind of gearing employed, upon its good or inaccurate manufacture, and on its condition of cleanliness and proper lubrication. At six miles per hour on a smooth, hard, level road, without head wind, as little as 50 to 60 watt-hours per ton-mile has been authenticated, but over 200 is often needed, and 140 to 150 is generally assumed as the average. An extra 45 watt-hours exactly per ton-mile is needed for each 1 per cent. in the upgrade of the road. Thus a grade of 1 in 12 = 8⅓ per cent., needs extra driving work of amount 8⅓ × 45 = 382 watt-hours per ton-mile.

At 150 watt-hours per ton-mile and ten watt-hours as the storage capacity per 1 lb. of battery there would be needed 15 lb. weight of battery for every ton-mile of travelling duty to be done upon one re-charge. To provide for climbing at least an extra 5 lb. may be added, making the allowance 20 lb. of battery per ton-mile. If it were 22·4 lb. per ton, or 1 per cent., this would mean that a 100-mile journey would be just outside the range of possibility because for it the battery weight would need to equal the whole load, leaving nothing over for weight of either coach or passengers.

As made at present the battery weighs from a half to one and a half times as much as the carriage and this—exclusive of battery—weighs from two to four times the passenger load it is seated for. Thus the total load, inclusive of full passenger load, is from four to ten times that of the useful passenger load carried. ..... Good carriages without extra luxurious fittings may be bought for, say, £150 per 1000 lb. in the weight of the carriage alone *plus* £60 per 1000 lb. in the weight of battery. 20 per cent. per year may be taken as the sum of interest, repairs, and depreciation upon the car alone, exclusive of battery, and exclusive of tyre repairs and renewals. 75 per cent. is not too much to take to cover the similar battery costs on the assumption that regular daily use is made of the car. ..... The cost for recharging varies locally very greatly, but may be assumed at an average of ½*d.* per mile per 1000 lb. load. ..... The daily cost must always be more than 105 pence, or, say, 9*s.*, for the minimum of one passenger and 2½ miles. ..... A 4-seat car, running 48 miles per day, costs 25*s.* per day, and would cost 20*s.* per day if run 27 miles per day on the average.

THE FACTORY GIRLS' COUNTRY HOLIDAY FUND.

THE treasurer of this society informs us that he has received a subscription of 10*s.* from a correspondent who wishes it to be acknowledged in the columns of THE LANCET under the initials "X. Y. Z."

POISONING BY PRUSSIC ACID.

To the Editors of THE LANCET.

SIRS,—I had on Monday what I think was a providential escape from sudden death by prussic acid and as the recoveries from that poison are, I take it, rare I thought, without being egotistical, I might tell you my symptoms. I had cut my right forefinger opening a vaccine tube and the wound bled rather profusely but I did not dress it. Later in the morning I was dispensing from the prusaic acid bottle and a little ran over the wound. I had only just put the bottle down when I felt what I can only compare to a severe electric shock run up my arm to my heart and down both legs and I sank down on the floor, where I was compelled to lie for a minute. When I got up I called to my caretaker and sent her for brandy and she says I looked very white and I was trembling violently. I can put this down to nothing else but the prussic acid, as I am in the best of health, a young man, and a fair athlete.

I am, Sirs, yours faithfully,

Oct. 4th, 1904. GRIFFIN WILKES.

THE "KOZY" COVERED FOOT-WARMER.

THIS foot-warmer is designed to minimise the risks of burning the patient's body and instead of being inclosed in a flannel bag, which in many respects is not a convenient plan, it is provided with a cover kept in position by a row of buttons which are part and parcel of the stoneware itself. Further, the bottom of the warmer is concave and the buttons are situated at the top of the curve so that there is no likelihood of the flannel cover getting detached or of being shifted. The warmer is neatly fashioned in stoneware and may be obtained from the New Lines Introduction Co., of 44, Adelaide-road, West Ealing.

VACCINATION PADS.

To the Editors of THE LANCET.

SIRS,—I am a public vaccinator and it occurs to me that being paid by British taxpayers' money I ought only to buy British-made "vaccination pads." Will some experienced public vaccinator name a good British-made pad for the benefit of those, like myself, recently appointed "public vaccinators" who wish to be patriotic?

I am, Sirs, yours faithfully,

Oct. 4th, 1904. INQUIRER.

"HOSPITAL SUNDAY FUN."

GROAT writes:—"In reference to the humorous remarks made by your correspondent last week under the above heading I should like to point out that according to his own showing the loss suffered by the Hospital Sunday Fund is happily infinitesimal. He says that the 'Fund' by the dropping of the last letter has 'been reduced by one quarter!' It has, however, in fact lost only one d (1*d.*), financially an altogether insignificant diminution."

LIVE WIRES.

To the Editors of THE LANCET.

SIRS,—Public attention has been directed by the daily press recently to a number of accidents, many of them fatal, caused by contact with exposed rails or cables used for the conduct of powerful electric currents. A rather curious case occurred a short time since in some large engineering works in the midlands which, however, fortunately was not attended with any serious consequence. The works in question consisted of a number of sheds to which low-power currents were conducted by uncovered overhead wires from a small central generating station for lighting and other purposes.

A visitor going on a round of inspection was accompanied by a small dog. The dog ran hither and thither with that pre-occupied air common to animals of its class. Suddenly its attention was arrested by a post up which an exposed electric main was carried. Pausing for a moment in front of the post the dog made a fluid connexion with the exposed wire, thereby creating a short earth current with remarkable effect. The animal was instantly thrown a considerable distance, immediately cutting the connexion with the wire, not, however, before it had received a most severe shock, both physical and mental.

I am, Sirs, yours faithfully,

Sept. 30th, 1904. K. E.

"LIGHT-TIGHT" BAGS.

WE have received from Mr. William Tylar of 41, High-street, Aston, Birmingham, some specimens of "light-tight" envelopes for use in x-ray work. They are very neatly made, durable, and strong. The "bag" consists of an outer envelope made of a dead-black material, dull outside and glossy inside. Inclosed in this black envelope is a smaller envelope made of orange-coloured material. They are obviously useful for preserving negatives, films, or sensitised paper.

A NEW DANGER IN THE DUSTBIN.

AT a recent meeting of the Wimbledon district council Mr. Rawcliffe, the chairman of the road committee, stated that a number of loaded cartridges had been found in dustbins in Wimbledon. The committee intends to issue a notice warning volunteers in the district not to adopt this dangerous practice which might result in injury to men employed at the dust destructor. Thus another danger is added to the deadly dustbin. We may mention that for some time past the dustcarts of the Westminster city council have had notices pasted upon them warning the public of the district not to put explosives into dustbins. Some little time back an explosion occurred on a barge lying alongside one of the Westminster city council's wharves and caused injuries to several of the workmen employed there. We are fast approaching the annual celebration of the "never-to-be-forgot" Gunpowder Plot and it is possible that some of the unused squibs and crackers may find their way to the dustbin in addition to a few bad cartridges which will not go off at the annual back-garden revolver practice which is conveniently coverest by the booming of Guy Fawkes' night. People in the habit of doing such things should be invited "to turn from their wicked ways" "and repent in dust and ashes" while there is yet time.

POST-MORTEM CÆSAREAN SECTION.

To the Editors of THE LANCET.

SIRS,—I should be much obliged if you could kindly inform me through the medium of THE LANCET as to the ethics of post-mortem Cæsarean section. I presume in ordinary circumstances the consent of the nearest relative should be obtained, but in hospital practice where the relatives are not always at hand this may be impossible. In these circumstances is the medical man justified in doing Cæsarean section? I refer especially to cases where the patient collapses and dies quite suddenly during or before labour.

I am, Sirs, yours faithfully,

Sept. 15th, 1904. R. S.

*** In all cases whenever possible the consent of the nearest relative should be obtained. When this is impossible and there is a chance of saving a viable child alive post-mortem Cæsarean section should be performed, always provided that the child cannot be delivered as quickly *per vias naturales* after rapid dilatation of the cervix by a Bossi's dilator or by multiple incisions.—ED. L.

O. G. S.—There are so many schools of cookery that we cannot undertake to say which is the best, but our correspondent will find that the National Training School of Cookery, 72 to 78, Buckingham Palace-road, London, S.W., is a very good one.

N. J. M.—The fluid sent to us by our correspondent contains glycerine, formic aldehyde, and phosphoric acid.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (12th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (13th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (15th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (10th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8 P.M. General Meeting. 8.30 P.M. Ordinary Meeting. Mr. J. Langton (President): Opening Address. Paper:—Mr. M. Sheild: A Case of Gigantic Renal Calculus, with Remarks upon Cases where Renal Stones form obvious Tumours.

TUESDAY (11th).—MEDICO-LEGAL SOCIETY (22, Albemarle-street, W.).—8.15 P.M. Third Annual General Meeting.

SOCIETY FOR THE STUDY OF INEBRIETY (Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.).—3.30 P.M. Council Meeting. 4 P.M. Discussion on the Drinking Habits of Uncivilised and Semi-civilised Races (opened by Dr. C. F. Harford).

WEDNESDAY (12th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Demonstration of Cases of Interest.

SOUTH-WEST LONDON MEDICAL SOCIETY (Bolingbroke Hospital, Wandsworth Common).—8.45 P.M. Paper:—Dr. de H. Hall: Errors of Diagnosis.

THURSDAY (13th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. Edge, Mr. F. Jordan, Dr. W. Duncan, Dr. Macnaughton-Jones, and others. Paper:—Mr. C. Martin: The Treatment of Severe Prolapse by Extirpation of the Uterus and Vagina.

HARVEIAN SOCIETY OF LONDON (Stafford-rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Mr. C. B. Keetley: On Plastic Surgery. (Harveian Lecture.)

FRIDAY (14th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Presidential Address. Papers:—Dr. W. Harris and Mr. V. W. Low: The Cure of Infantile Paralysis of the Shoulder by Nerve-grafting (with case to be exhibited).—Mr. W. G. Spencer: Cases of Inflammation in and around the Liver.—Dr. P. D. Turner and Mr. R. Johnson: Traumatic Axillary Aneurym successfully treated after Extravasation had occurred by Proximal Ligature.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. T. C. Fox: Clinique. (Skin.) 5.15 P.M. Mr. J. E. Lane: The Treatment of Syphilis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—3 P.M. Mr. Paget: Demonstration in Surgical Wards.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM (City-road, E.C.).—2.30 P.M. Mr. F. Wallis: Lecture-Demonstration on Diseases of the Rectum.

TUESDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. G. A. Sutherland: Clinique. (Medical.) 5.15 P.M. Mr. Hutchinson: Museum Lecture.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Beevor: Cerebral Anatomy and Localisation.

WEDNESDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Berry: Clinique. (Surgical.) 5.15 P.M. Dr. H. Mackenzie: Graves's Disease and its Treatment.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—4.15 P.M. Dr. Beddard: Demonstration in Medical Wards.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM (City-road, E.C.).—10.30 A.M. Mr. L. Mummery: Clinical Demonstration in the Out-Patient Department.

THURSDAY (13th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Dr. W. J. Horne: Pachydermia Laryngis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—3 P.M. Dr. Hood: Demonstration in Medical Wards. 5 P.M. The Right Rev. the Lord Bishop of Oxford: Opening Address.

CHARING CROSS HOSPITAL.—4 P.M. Mr. S. Boyd: Demonstration of Surgical Cases. (Post-Graduate Course.)

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Dr. Roberts: Cases from the Wards.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Introductory Address:—Dr. G. A. Gibson (Edinburgh): Certain Aspects of Pleurisy. (Post-Graduate Course.)

FRIDAY (14th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. J. Horne: Clinique. (Throat.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. R. J. Reece: Air Meteorology.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Beevor: Cerebral Anatomy and Localisation.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 6th, 1904.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp in Shade	Min Temp	Wet Bulb	Dry Bulb.	Remarks at 8.30 A.M.
Sept. 30	30·05	S.	...	81	61	46	48	49	Foggy
Oct. 1	29·71	S.W.	0·09	74	62	49	60	61	Cloudy
" 2	30·01	S.W.	0·13	68	57	46	46	47	Overcast
" 3	30·20	E.	0·13	96	61	46	50	51	Raining
" 4	30·25	E.	...	84	64	47	48	50	Foggy
" 5	29·98	S.W.	...	71	61	49	49	54	Cloudy
" 6	29·55	N.W.	0·06	102	59	53	49	56	Cloudy

During the week marked copies of the following newspapers have been received:—*Carlisle Patriot, Yorkshire Post, Swansea and Glamorgan Herald, Dewsbury Reporter, Leeds and Yorkshire Mercury, Hertfordshire Mercury, Liverpool Daily Post, Leamington Spa Courier, Scottish Reformer, Surrey Advertiser, Beverley Recorder, Manchester Evening Chronicle, Oldham Standard, Sheffield Independent, Birmingham Post, Cardiff News, Birmingham Daily Mail, Liverpool Mercury, Manchester Dispatch, &c.*

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